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ARTICLE I. — *Syphilitic Lesions of the Viscera.* A Paper read before the Chicago Society of Physicians and Surgeons, by JAMES N. HYDE, M.D.

It is a pathological fact, as curious as it is interesting, that the field of certain forms of inflammation coincides with the field of certain ultimate structural elements; and that the boundary lines of this field are, oftentimes, traceable only by minute differences of cell-formation. How often, for example, is the mucous wall of the fauces affected by an inflammation which never encroaches upon the membrane of the larynx; or the cavity of the prepuce filled with the infectious discharge of a balanitis, while the urethra remains intact. In the former case, the edge of the epiglottis, in the latter the lip of the urinary meatus, has an elementary structure, different, though slightly different, from that of the surrounding parts; and this difference offers an effectual barrier to the spread of the disease. There are, nevertheless, inflammations of such violence and virulence that they overleap the limits respected by the milder grades, and encroach upon every portion of the human

economy. The question as to whether a given inflammation will exceed a given boundary, is one which involves the degree, rather than what is called by the French, the "*specificity*," of the disturbance; and this is a consideration of importance in investigating the "*Syphilitic Lesions of the Viscera*."

If there is any disease in our nomenclature, whose natural history can be accurately described, and whose bearings, if I may so speak, we can, at any period of its career, ascertain by the chart, such a disease is syphilis. Unlike almost all others, the date of its inception is exactly determinable; no doubtful prodromata confuse its immediate diagnosis; every one of its stages furnishes its own special signs of existence; and its issue, when left to itself, is almost capable of prediction. In the course of this its natural and unmodified career—the field which it selects for the display of its phenomena, possesses a striking importance from the very uniformity of its predilection. As a rule, those tissues and organs are invaded which are developed from the external serous or animal layer of the blastodermic vesicle. The entrance of the virus is effected at the superficies of the body. Then, in succession, it attacks the external integument and the apparatus accessory to it: the constituent elements of the skin, the nails and hair, the sweat and lymphatic glands, the mucocutaneous tissues, the eyes, nares, mouth, and external genital. Then the locomotory apparatus suffers—in cartilage, bone, tendon, muscle, and periosteum. Finally, as if by one saltus, the disease passes over to its *inheritor*—here again affecting the external integument, often reappearing at the anus—and repeating, in its hereditary form, many of its old excursions into tissues already indelibly marked by scars in the progenitor. Is it not almost the exception to discover in the history of this career, any visceral complication—any passing over, as it were, of that structural limit already described—any transference of its destructive agency, from the organs developed from the external animal layer, to those originating in the internal mucous or vegetative layer of the human blastoderm?

Witness, for example, the patients in any venereal ward of a hospital. There you will find some exhibiting every stage of the disease—some with carious ulceration of the cranium—others dying from destructive disorganization of the soft parts of the face, throat or limbs; and not one case of *visceral syphilis*.

This is the more remarkable in view of the readiness of such affections, attended with cutaneous eruption, as the variolous, the scarlatinal, the erysipelatous and the rubeolar, to assume aggravation in consequence of inflammation of the lungs, brain or kidneys. And the literature of syphilis attests the same fact. Here visceral lesions are more or less accurately described, but illustrative cases are rarely given, which might enable the reader to gain exact ideas of the complications, or the descriptions are so vague and general that the student comes to regard them as possibilities to be specially examined, when, if ever, they occur in practice.

Subjoined are the outlines, for which I have to depend largely upon my memory, of the only two cases of visceral syphilis, that have occurred to my personal observation during ten years' study of the disease—some of them passed when in charge of venereal wards. The first of these cases was treated in hospital, and the second presented itself in private practice but a few weeks since.

The hospital patient was an adult male, thirty-two years of age, brought into the medical ward with a card from a surgeon, stating that he was affected with "pulmonary tuberculosis." It was added that he was losing flesh, that moist rales were audible in his chest, and that the most distressing symptom in his case was his excessive *hæmoptysis*. Of this latter fact there could be no doubt, as I had an opportunity of verifying it—not once but often, while he was in my charge. On the very afternoon of his admission, I witnessed at his bedside a discharge of blood greater than I had ever seen escape from a consumptive. He was half-erect in bed, his frame was extraordinarily convulsed in the paroxysms of the cough, his face suffused with color, and he held before him a hospital basin almost full of bright-red blood, mixed with the saliva and mucus expelled by the same violent effort. I administered Monsel's salt by insufflation, i. e., locally and by the mouth, till the hemorrhage ceased, and then made a careful examination. He was large, and had ample chest-room. The bony framework of his thorax was unusually well developed, and his complexion was clear, without either that transparent delicacy peculiar to one class of phthisical cases, nor the dirty, earth-discoloration characteristic of another. He was thin but not emaciated—his thinness being rather that apparent in large-boned men, where the osseous

projections contrast with the surface hollows, and which is not due to disappearance of the fat-cells. Percussion of the chest elicited a distinctly normal sound on both sides, except over a small space on the right, between the third and fourth ribs, extending between a perpendicular line passing through the nipple and another dropped from the anterior border of the axilla. Auscultation there detected an absence of the respiratory murmur, and in the neighborhood were occasional distinct rales, due to the effused blood and mucus in the larger tubes—partly, no doubt, resulting from the violent effort made in coughing. On the left side, the respiration was normal. The pulse numbered 80 per minute, and the respirations 20; the pulse-respiration ratio being 1-4, and slightly raised, as I subsequently discovered, above the proportion which was in his case normal—the difference being due to the excitement consequent upon hemorrhage. His tongue was clean; there was no perversion of appetite, bowel function, or sleep, and consequently no night-sweating. I left him quiet, with directions to renew the hæmostatic treatment, if the necessity for it recurred; and I might add, that I left him completely ignorant of the nature of his malady. After carefully excluding the possibility of the existence of pulmonary phthisis, thoracic aneurism and apoplexy of the lungs, I was at a loss to account for his symptoms.

The clue to the case came to me by accident. I was stating its singular features to Dr. C. D. Maxwell, when he asked to see the patient, and, upon being shown him, recognized, at once, a former inmate of the venereal ward, discharged but a few months previously, after treatment for secondary syphilis. The patient had, up to this time, denied the fact of previous disease, but now admitted the deception. Dr. Maxwell stated to me, that he, the patient, had been relieved of a syphilitic eruption, so general that it extended to the tips of his ears and toes, and so vivid that it gave him the appearance of a "boiled lobster." I suggested that his present disorder might have originated in his late attack, but Dr. M. thought otherwise, and expressed to me his belief that the man was really consumptive and would die in a few months.

I was convinced, however, that there were gummy tumors of the lung, induced by syphilitic infection, which were softening, ulcerating, occasionally opening into a blood-vessel, and located

at that point of the chest where the morbid phenomena were evident. The line of percussion-dulness distinctly defined this space. Around it, during the interim of the hemorrhages, the ronchi which were audible when the air-cells and tubes were partly filled with blood and mucus, gave place to an entirely normal respiration. Over it, there was no indication of a respiratory murmur.

I determined on specific treatment soon after this; not immediately, as I was fearful of exhibiting remedies which might impair the plastic quality of the blood, and hasten the disintegrating process. But soon this became necessary, as nothing else relieved him. Every other day—or about as often—the same violent hæmoptysis would recur; in each, there was an astonishing quantity of blood ejected, and in each, the same violent cough convulsed the chest and entire frame, as if in the effort to expel an irritating foreign body. When relieved by the hemorrhage the cough disappeared entirely; and there resulted a pulse, perhaps somewhat softer than before, moderate weakness, a fair appetite, and the *primæ viæ* in a normal condition.

I commenced by administering five grains of the iodide of potassium tentatively, and slowly increased this dose to a scruple, three times daily, given without combination and in abundant solution. Iodism was soon induced, with coryza, and the characteristic eruption appeared, mingled with some copper-colored blotches around the nuclea. The medicine was suspended, then resumed in smaller doses, and an interval of ten days occurred, without pulmonary hemorrhage—the longest since his admission—the patient meantime gaining in flesh and strength, and manifestly improving in appearance. Then occurred another severe hæmoptysis, which was followed by the large doses of the iodide; the flowing of blood having been arrested in this, as in his later attacks by the use of an infusion of matico, which I had seen recommended for that purpose, and which relieved him more speedily than the method first used. Then ensued another long interval of repose, without hemorrhage, during which the space which was dull under percussion, slowly contracted its limits, and became less easy of recognition. A thin stratum of respiratory murmur, if it may be so described, interposed itself between the ear and the subjacent condensation of the lung-tissue. This gradually extended and

deepened. In fifteen days more, the last hemorrhage occurred, and it was insignificant in character and amount. I concluded by adopting a mercurial course, internally; and externally by the improvised vapor-bath, given with the lamp, chair and blanket. As the case was interesting, I retained the patient in hospital longer than was customary, to make sure of the issue. The cure seemed positive and final. He was afterward discharged, with every appearance of robust physical health, and six months later when I saw him, he assured me of his continued improvement.

With regard to the remedy which seemed to prove of the greatest value to this patient, it is necessary to make an explanation. Dr. F. J. Bumstead—who is deservedly esteemed the most eminent of American syphilographers—taught, when I first listened to his lectures, that the iodide of potassium was ineffectual in syphilis, except when administered in the tertiary stage, and that then its chief use was in eliminating mercurial preparations which were presumed to be residual, or left fixed in the system, under one form or another. It was noticed that pyalism sometimes occurred when the iodide was exhibited after a mercurial course, and it was inferred that the former remedy combined with the latter in some way, so as to free it, and render the new compound capable of elimination by the secretory and glandular system. Hence the iodide was to be used in tertiary syphilis only, and then after a mercurial medication.

My own convictions have compelled me to reverse, or rather accept inversely, the advice of that day. Experience has taught me that when syphilitic patients in any stage of the disease present themselves for relief—and they often present themselves when they require *speedy* relief—the iodide of potassium is the one remedy which will most surely and most speedily procure that relief; and that the mercurial is often indispensable in order to make that relief permanent.

At that time, also, the ordinary dose of the iodide for an adult was ten grains. That was the conventional, the routine, dose. I had seen the remedy used in numerous hospital patients, sometimes in those inveterate cases which are the despair of the outgoing house surgeons, and the subjects of experiment for all the incoming newly-graduated staff, but I had never known that dose to be exceeded. It remained for me to obtain from a friend who

studied his profession in Paris—an intimate of the French philosopher, Cousin—and something of a philosopher himself—a knowledge of the power possessed by this drug. I believe, to-day, that it will control the extension of the syphilitic virus *for a time*, as completely as quinia will check the miasmatic influence.

The circumstances were these: A patient in Bordeaux, France, with whose symptoms I was familiar, had been carried to his room in the hotel on a litter, in consequence of periosteal disease in both tibiæ, for which he had been undergoing a tedious mercurial treatment. In the course of a few days, during which he received, for the first time, the care of my friend, the doctor, he improved so much in general health and spirits, that he attended a ball where he joined in a waltz. I inquired of his physician, how he had effected such a charm. His reply was short, "*Enormous doses of the iodide!*" He went on to say, that he had "learned when living in the Quartier Latin, to use the remedy in this way, commencing with the usual dose and increasing it cautiously to a scruple, drachm and even half an ounce, in well-diluted solution." I had heard of this before, but the practical effect just wrought with the aid of such doses, gave me a vivid idea of their possibilities of usefulness.

This was in 1866. In October of 1871, Dr. Bumstead, in an interesting article, which appeared in the *American Journal of Medical Sciences* of that date, page 578, and which was reprinted from the September No. of the *American Practitioner* of the same year, offered some new suggestions on the treatment of syphilis. I quote his words: "Relief will be had, and important organs will be saved, by giving one hundred grains (of the iodide of potassium) when the disease only laughs (metaphorically speaking) at fifteen or twenty! Patients find this out themselves, when you have not stinted them in the use of the remedy, and will tell you, as one of my patients with syphilitic necrosis of the ulna recently did me, that forty grains three times a day had no effect, while fifty three times a day were at once followed by a manifest improvement. The iodide of potassium has been given with impunity in the quantity of two or three ounces in the 24 hours for several weeks, and even months, but this amount is unnecessarily large. I have never had occasion to exceed three drachms per day, and from a drachm and a half to two drachms is usually sufficient."

Dr. B., however, still confines its use to *tertiary syphilis*, and then employs coincidentally a mercurial inunction. I have not seen the edition of his work just completed, and do not know if this improvement in treatment is there noted.*

In connection with this subject, I condense from the Frevel of Lancereaux, the details of a case which I believe does not appear in the abridged translation of his voluminous treatise :

Louise R—, a laundress, 41 years of age, states that her father and mother, and nine of their twelve children, have been syphilitic. At about eight years of age, she became partially blind, and had sore throat and aphonia. At fourteen, occurred a deafness which disappeared, then returned, and still persists. At 18, she had not menstruated, and suffered from slow fever, intense headache, vertigo, and alopecia. In 1859 she had pleurisy; and two months later, entered hospital, where she suffered from hæmoptysis, repeated at the close of that year, and the beginning of the next. In June of 1860, when in fair health, she had an exceedingly abundant hæmoptysis, and estimates the quantity of blood passed in 24 hours, at one litre.

She is a small, scarcely-developed woman. Her breasts are those of a young girl not arrived at puberty; her vagina scarcely permits the introduction of the little finger. There is no trace of a hymen or its relic; her voice is harsh; her nose flattened at the base; her head almost bald; her face pale, but not emaciated. A recent hæmoptysis, with vomiting of food and cod liver oil (which she takes, habitually, in large quantities) are the reasons assigned for her applying to hospital. She has pain in the shoulder and arm of the right side, and some distress in the stomach. Deafness exists to such an extent that questions have to be addressed to her in writing. There is no alteration of the external ears. Percussion dullness and obscure respiration are discovered over a space several centimetres in extent, above and internal to, the right breast; at the same level, and further toward the axilla, a soft and impulsive soufflé is audible, quite different from the bronchial sound, and possessing *inferiorly* a hollow quality. Occasionally, during cough

* All the editions of Dr. B.'s work mention these large doses as in use, but their practical value is not insisted upon!

a profound inspiration, subcrepitant or cavernous rales are audible. Posteriorly, these phenomena exist, but are less distinct. There is frequent cough, with abundant bloody expectoration; the sense of smell is almost entirely destroyed, and her appetite is deranged, with marked gastric disturbance, and hectic with evening exacerbation. Flying blisters were applied to the chest, and a soothing potion administered. This condition continued—with moderate appetite and progressive emaciation; her face remaining pale and full—during November and December; when she had numerous returns of hæmoptysis. She left the hospital in January.

In March she returned still more emaciated, with persistent cough and habitually sanguinolent expectoration. The chest signs are: cavernous souffle a few lines from the clavicle, audible but less distinct posteriorly; and percussion dullness over the same region. Occasionally loud gurgling mucous rales were heard. The fever continued, increasing in intensity, with anorexia and diarrhœa. She died in 1861 after progressive marasmus.

At the autopsy *no trace of tubercle or tuberculous disease was discovered* in the chest. The right lung contained several cavities produced by ulceration in the midst of a tissue extremely indurated. Some of these vomicæ would contain a pigeon's egg, and had smooth, shining walls. These indurated portions had a greyish appearance, and were so tough they could not be torn.

At the autopsy of a similar case, reported by this author, where hæmoptysis had also been a prominent symptom, these indurations were said to resemble marble of a sea-green hue, and to have the feeling of a periosteal node. No tubercle was anywhere discovered.

In considering the symptomatology of these cases, we ask, to what extent are they induced by syphilis? and, how far are they merely the result of a cachexia, brought about by syphilis it is true, but in their issue like those produced by other depressing agencies? There can be but one reply. The treatment, or rather the result of the treatment, is a key to the problem. Could a patient suffering from tuberculous consumption, find relief and restoration to health, in a few weeks' course of the iodide of potassium and mercury? Would any one expect to find in a woman dead of tuberculosis of the lung, after years of suffering, pulmonary cavities

as large as pigeon's eggs, without their usual purulent, disintegrated and ragged parietes?

Walshe discusses this deposit in one short paragraph. "The syphilitic gummata of the lung," he says, "look like nodules of lobular pneumonia—they soften and are eliminated—are non-vascular, and have a consistence rivaling that of scirrhus. Their diagnosis must be difficult. The physical signs are those of solidification, softening and excavation—local and general symptoms simulate phthisis. There is strong reason to believe the iodide of potassium essential. Precise information is wanting."

My attention has been recalled quite recently to the visceral complications of syphilis by the only other case falling under my observation, which occurred in private practice a few weeks since :

Mr. S——, a member of the Chicago Board of Trade, married, without children, and in very comfortable circumstances, applied to me one year ago, with synovial inflammation of the ankle-joint; relieved, after assuming a particularly sluggish phase, by rest, leeches, and the application of a leathern splint. While under treatment I discovered two pustules of ecthyma on the scalp, and he exhibited to me a small indolent ulcer, as large as the head of a carpet-tack, over the first tarso-metatarsal articulation of the right foot. He then admitted, on questioning, the existence of a single chancre two years previously, and before his marriage, when he was in St. Louis, which had been cauterized by a physician of that city, who had also given him some medicine, and assured him of no future ill-consequences. Since then he had been treated by the late Dr. C. C. P. Hildreth of our city for over a year, for chronic catarrh and slight deafness, due to inflammatory obstructions of the Eustachian tube. I advised him to undergo specific treatment, but the demands of his business were pressing, and the returning usefulness of his ankle-joint enabled him to return to his duties. Meantime his wife was delivered of a blighted ovum.

He returned to me with a syphilitic onychia, located at a point where he had received previous injury from a bruise, viz., over the second toe of the right foot. Near this, was the small ulcer which has been already referred to, now enlarging and deepening. On the occasion of the previous treatment, he had given me opportunity to cauterize this but once. Pus had accumulated

under the corrugated and deformed nail, and its matrix was sloughy and ill-looking. I completely removed the nail, with the scissors, and cauterized its bed most thoroughly, as well as the neighboring ulcer, dressing both with a reduced ointment of the nitrate of mercury. An abscess formed in the instep of the same foot, which discharged, when opened, a very ill-conditioned pus. This was treated with caustic and similar dressings. Mr. S. then took internally the iodide of potassium, in doses which were gradually increased to about one drachm daily. He also rubbed into the axilla at night, a quantity of mercurial ointment as large as a bean. This was continued for a week, when the quantity of the iodide taken amounted to more than a solid ounce. No ill effects had been produced, slight iodism had occurred, but the ulceration, which before had steadily extended, now gave place to simple granulating wounds. A course of the protiodide of mercury was then substituted for all other medication, and would have been steadily persisted in, had not the wounds of the foot completely healed, and the patient, as on the previous occasion, considering himself quite cured, returned to immerse himself in a business which left him no time for medical consultations.

After the great fire, his engagements for a time gave him opportunity to consult me with reference to his minor ailments. He soon appeared complaining of moderate anorexia, and I gave him a little ferruginous tonic. His appetite began to improve soon after, but he returned and stated that he suffered from some sweating at night, and that his general health was poor. Yet his skin was clear, and there was no trace of any recurrence of his former trouble. I confess that while I admitted to myself the possibility of a syphilitic dyscrasia, I hesitated to resume a debilitating treatment, with no positive indication of its necessity. Especially did I dread such treatment when apparently counter-indicated by the night-sweating. I therefore gave him some sugar-coated granules of the dried sulphate of iron and requested him to return in a week. At the expiration of that time he reported himself improved, but his face was quite pallid and there was a manifest puffiness of the left upper eyelid. I examined his urine at once, and that examination threw a flood of light upon his case. Albumen was precipitated by heat and nitric acid, in quantity about equal to one-fifth of the bulk of urine in the test-

tube. Under the microscope, granular, epithelial casts came into view—some quite large, all perfectly distinct, and markedly granular. The field was tolerably well covered with pus cells. There were no other abnormal ingredients. It was evident that a syphilitic inflammation had involved the pelvis, tubes, and perhaps also the adjacent parenchyma of the kidney. In selecting a mode of treatment it was clear that the same doses of iodide, which the patient had tolerated so well before, might fulfill *now* another indication, in consequence of the elimination by the kidneys; I therefore prescribed the iodide of potassium in scruple doses—the patient taking nearly one drachm and a half per diem (note!) in abundant solution, and, at a different hour, three times daily, twenty minims of the muriated tincture of iron. I looked upon the case, however, as a grave one, and represented it so to him, urging upon him the advantage of a consultation for his own sake, as well as for the confirmation of my views. He named Dr. N. S. Davis of our city, and together we examined the patient. Dr. Davis agreed with me fully as to the diagnosis and treatment, but offered a suggestion as to the medication to be pursued, which I give in full, as it may prove of value to some who are present.

Dr. Davis stated to me that ten years ago, the preparations of *pareira brava* in market were of such quality that he and his professional associates of that date made efficient use of them in cases of purulent or semi-purulent discharges from the kidney. That of late years the sensible effect of the remedy had diminished, or disappeared, to such an extent that he and others had discontinued its use. The matter had been investigated by the well known New York druggist, Dr. E. R. Squibb, who discovered that only twigs and small branches of the *cissampelos pareira* were imported from South America, and he at once proceeded to import a quantity of the *root*. From this he prepared a fluid extract of such quality that he felt confident it would answer all indications formerly fulfilled by the remedy. This preparation Dr. Davis suggested that I should add to the solution of potass, which I was then administering.

I should add, that I have examined a specimen of this fluid extract, for which I am indebted to Mr. Sargent, the druggist, and

that it possesses a decided difference in color, taste and other peculiarities from the ordinary extracts.

My patient was then placed upon the following active course of medication: twenty minims of the muriated tincture of iron before each meal; a scruple of the iodide of potassium, and a fluid drachm of the pareira extract after each meal. This course was pursued for one week, during which I examined the urine carefully, and had the satisfaction to observe a daily diminution of the quantity of albumen, till there was left but a faint trace. After taking about two ounces of the iodide, slight iodism occurred, and the characteristic eruption spread over the neck and face. The puffiness of the eyelid, the waxy hue of the skin, and the albumen in the urine, were not distinguishable at the end of two weeks. The treatment had, in the meantime, been changed to smaller doses of the tincture of iron, and one-fourth of a grain of the protiodide of mercury taken with meals.

My patient, who had been greatly depressed on learning that he had a disease of the kidneys induced by syphilis, now became rapidly convalescent. His night sweats had ceased, his cheeks exhibited some color, and at last he assured me he had not felt so well for two years. The case resulted in complete restoration to health. I have seen him several times since dismissing him, and he reiterates the statement that he has not felt so well since his infection.

The last case to which I refer, I translate from Roger, and condense as much as possible. It seems to illustrate the fact that the value of the iodide in syphilis does not depend, in any measure, upon the elimination of mercurial compounds previously administered; as here no mercurial treatment had been previously pursued. Experience, after all, is the great teacher—and here is an "experimentum crucis:"

P—, a woman of fifty-two years of age, was infected by a syphilitic husband, and had suppurating axillary bubo, which left an indelible cicatrix; alopecia; tibial and femoral ulceration; emaciation; pale, earthy discoloration of the skin; epigastric and cephalic pain—the latter often of a grinding character—with nocturnal exacerbation and insomnia. She was admitted to hospital in May, 1863; irregularities and nodosities of the right lobe of

the liver, with some tenderness, were then established. The urine was pale, and contained a notable quantity of albumen. It was voided in normal quantity. Under the microscope, granular cells and granular globules (these were almost, of certainty, pus cells) in large numbers, came into view. They were recognized as proceeding from the uriniferous tubules of the kidney.

On the third of June, Dr. Potain administered 2 gramme- (30-grain) doses of the iodide of potass. The cephalic and hypogastric pain disappeared; the tint of the skin improved; the ulcers commenced to heal; sleep, muscular force and embonpoint returned. The liver diminished in volume, but retained a slight tenderness on pressure; and the urine continued to give an abundant albuminous precipitate.

On the 18th of June, the albumen had entirely disappeared, but the abnormal microscopical elements were visible in the urine.

The case terminated in a perfect cure; all traces of renal, hepatic and syphilitic disorder having been succeeded by the usual conditions of sound health.

This is the only case of syphilitic albuminuria, beside the one first given, which I can find recorded. In Jocenni's monograph on Albuminuria, the possibility of a syphilitic cause is not entertained; and in Aitken's article on the same subject, there is merely brief allusion to the two pathological products—interstitial hyperplasia, with fatty and lardaceous degeneration—and small, round, white gummata, with softened centres. But it is added, that "Dr. Dickinson can find no proof of the existence of syphilis as a cause of Bright's Disease." On comparing with this, the chapter on Syphilis in the same work—"Aitken's Science and Practice of Medicine"—the posology recommended contrasts with that to which I have given pre-eminence. The treatment by the iodide is barely alluded to, and the largest dose recommended is fifteen grains in twenty-four hours, (say five grains three times daily,) "gradually increased." Increased to what extent? Would an ordinarily cautious practitioner, relying upon this authority, venture to administer more than 10-grain doses?

Here again we are confronted with the question, To what extent are these visceral disorders due to the ordinary causes of pulmo-

nary, renal or hepatic disintegration, and to what extent are they specific lesions of a specific disease? Here, as before, the treatment resolves the problem. Doubtless, it is possible that the syphilitic cachexia may destroy life by inducing low forms of inflammation of the viscera, just as the intercurrent pneumonia of typhoid fever, or the diarrhœa of consumption, where there is no intestinal tuberculosis, may do the same. But these inflammatory troubles are not connected with gummata or interstitial hyperplasias; in them, specific treatment might hasten the inevitably fatal issue. But the pathological deposits of syphilis in the viscera, are readily relieved by appropriate treatment, if the foregoing cases teach aright.

The rarity of these phenomena with us may depend somewhat upon the circumstance that in our country virulent syphilis is not very common. While there may be, numerically, as many cases of the disease with us as elsewhere, yet all classes of society resort to treatment early in the United States, and the disease is oftener arrested before all the organs of the body have been affected.

A single fact may illustrate this contrast in the prevalence of the disease. Primary chancres in Europe may be discovered in an incredibly large proportion, upon the hands, lips, ears and toes. Prof. H. H. Smith, of Philadelphia, informed me that he had seen but one facial chancre in his entire practice in this country. I have only seen chancres of the hands in ironed men on ship-board; their manacles confining their hands immediately over the genitals, and as cleanliness was impossible, infection of the former speedily ensued.

In conclusion, the etiology, pathology, diagnosis, morbid anatomy and treatment of these affections have been in turn briefly alluded to, as far as the desultory character of these remarks would permit. The length of this paper, extended already beyond its intended limits, precludes the discussion of other syphilitic visceral lesions, and especially that of the liver, whose morbid phenomena in this regard possess peculiar interest.

The consideration which I have endeavored to bring permanently forward, is the great value of the iodide of potassium, administered in such doses as will fully influence the system. For this purpose, small doses are often ample—in other cases,

large doses are absolutely essential—and in *extreme* cases the remedy may be pushed to full iodism by increasing a moderate dose slowly, till the point is reached. To this end it may be necessary to administer two drachms, and even half an ounce of the salt in twenty-four hours; it is only necessary to dilute the solution abundantly, and to note the effect each day.

It may be presumed that the system of each individual is capable of eliminating a certain given quantity of the salt in twenty-four hours—this quantity differing in different individuals. It is my belief that these cases of syphilis require a dose which will somewhat exceed the quantity a patient will ordinarily eliminate, in order to effect the hyperplasias, the lardaceous and gummy deposits, and perhaps even the hæmatopathia.

If it were not foreign to the subject-matter of these pages, I should proceed to show that, contrary to the advice of many syphilographers, this treatment can be applied to cases of primary and secondary syphilis, with singular success.

In the *Obstetric Journal* of last November (p. 570), Dr. Steiner, of Prague, compares the iodine and mercurial treatment for syphilis, and gives the preference to the latter, because, among other reasons, of the effect of the former "on general nutrition, and its occasional production of iodism." I have yet to see or hear of the first occasion when these incidents were not speedily superseded by discontinuing the remedy, and by the administration of tonics. In this particular, how unfavorable a contrast is suggested by the occurrence of ptyalism under a mercurial course, which often is *not* relieved by a suspension of the remedy.

Recommendations of Cundurango, lately used exclusively for cancer, have recently appeared over the signature of some South American physicians, who state that its chief virtues are displayed in the treatment of syphilis. I believe no experience of such a medication in this country has yet been published.

ARTICLE II. — *Case of Hemorrhagic Variola.* By A. CHENOWETH, M.D., Cook County Hospital.

H. R., of Germany, aged 26 years; by occupation a carpenter; spent the early part of his life on a farm. He afterward entered the army, where he remained for four years, taking part in the late Franco-German war. His diet during this time was not of the kind most conducive to health, consisting principally of salt pork. His health had been comparatively good, with the exception of a convulsion which he experienced about seven years ago, at which time the blood gushed from his nostrils and eyes. Having arrived in this country about five weeks previous to his last illness, he again resumed his occupation. Says that he was at work on the 18th of May, came home at noon feeling unwell, complained of pain in his head, chest, throat and bowels, face flushed; a physician was called in and prescribed, but the patient being delirious during the night took all of his medicine, regardless of time or dose. The patient commenced expectorating blood on the 20th. On the 21st of the month, three days after the first attack, he was admitted to the hospital. Pulse 126, respirations 44, temperature 103; tongue covered with a thick brown coating, fissured in the centre and marked by purpuric spots at the edge; the breath of an offensive, sanguineous odor; small, slightly elevated patches appeared all over the trunk and limbs, while the anterior portion of the chest and outer portion of the forearms presented a uniform red aspect.

May 22d, 9 o'clock, A. M. Pulse 120, respirations 30, temperature 102. Patient slept but little during the night; expectorated about one pint of blood during the night; stools frequent and bloody, urine scanty, but of a deep red hue; breath very offensive. Prescribed R. Aromatic Sulph. Acid, dr. ij; Aqua, oz. viij. S. Tablespoonful every two hours. R. Acid Gallic, grs. xlv; Syr. Acaciæ, oz. ij. S. Teaspoonful every three hours.

One o'clock, P. M. Our attention was drawn to the characteristic variolous eruption which appeared on the limbs and chest, with three or four papules on the face; owing to the redness of the surface and the color of the variolous eruption, attention had not been directed to the papula characteristic of variola previous to

this time, some of which had now become umbilicated. The skin, even where of a uniform red color, appeared elevated. The patient, notwithstanding the painful deglutition, took three pints of milk during the last twenty-four hours. Patient makes no complaint of pain in the back, as is usual in the genuine uncomplicated small-pox.

Here I lost sight of the case, as it was deemed necessary that he should be removed to the small-pox hospital, but through the kindness of the physician in charge, Dr. Cogne, I was put in possession of the subsequent history.

May 23rd. Patient still expectorating blood. Numerous unhealthy vesicles appearing all over the body, and although iron, quinine, milk-punch, beef-tea and other valued remedies were administered, the character of the eruption remained unchanged.

May 24th. Hemorrhage continued; pulse 130 and very weak; respiration hurried and oppressed; breath horribly offensive; skin hot and dry, becoming livid; vesicles numerous; bowels and kidneys acting freely.

May 25th. All the bad symptoms aggravated; the skin now nearly black; the vesicles appearing of an ashy color; blood oozing from nearly all the mucous surfaces; respiration difficult; pulse very weak, and extremities cold.

The patient remained in this condition for a few hours when death took place.

ARTICLE III. — *Case of Malignant Epulis of the Lower Jaw — with Operation by Prof. FREER.* Clinic at Cook County Hospital, May 14, 1872.

(Present: Professors GUNN and POWELL, Drs. PARKES, OWENS, CURTIS, and many other physicians of the city, and the class of medical students.)

(THE OPERATION. Reported by Dr. O'BRIEN.)

Professor Freer said: "The case here presented to you, gentlemen, is an unusual one; unusual for the *magnitude* of the tumor rather than for the nature of it. At first glance, you would naturally suppose that this tumor was an enormous, projecting

tongue, but studying it more closely and looking into the mouth attentively, you would discover the tongue *intact* and tilted up into the fauces, where it has been crowded by the rapid enlargement of this malignant tumor of the lower jaw. The bone itself, covered by the growth, has been crowded by it down upon the larynx, where it forms an apparent girdle to the tumor; the lower lip is widely stretched and almost obliterated; the sub-maxillary glands, greatly enlarged by the disease, rest upon the neck on either side of the bone. The patient can scarcely breathe as you observe, on account of the larynx being encroached upon by the disease; he swallows with extreme difficulty, suffers great pain, and will die in a day or two of suffocation, if allowed to remain as he is.

"Four months and a week ago, this case started with a little tumor surrounding two of the molar teeth in the left side of the lower jaw; it was epulis. This disease always begins in the periosteum of the alveolus, and involves the gum secondarily; it is usually simple and non-malignant, but in some cases, as in this, it is enormous in size, and malignant. There can be no question of the malignancy of a tumor presenting such a history and character as the one before us. Paget calls these tumors fibrous, but again in his work he calls them malignant, and describes them as recurring after removal. Erichsen describes them briefly as malignant epulis.

"The patient begs for an operation. We can scarcely hope for more than a little palliation of his sufferings. He is aware of the danger, and says that he prefers to take the risks with the small chance of improvement, to suffering intensely as now. The earnest solicitations of the patient, the certainty of speedy death from suffocation if not relieved, and, on the other hand, the chance of improvement however slight, which may follow a successful operation,—these considerations induce me to give the patient the only chance that is left for him.

"The difficulties are manifold, the most prominent of them being hemorrhage; the tumor is exceedingly vascular, as you might readily suppose, as it has grown rapidly. We must remove the lower jaw; and this involves another danger, namely, suffocation from the dropping of the tongue upon the glottis when its connections are severed—an accident which has occurred in the hands of

the ablest surgeons. We must allow no bubble of air to enter the veins. But I approach these dangers with confidence, having such able support and assistance."

Chloroform given, Prof. Freer transfixed the tongue with a tenaculum, which was intrusted to an assistant to prevent the danger of obstruction to the glottis; then with a scalpel he made an incision from the median line around the right half of the lower jaw to its angle and up the ramus, cutting in its course the facial artery, which presented the curious anomaly of bleeding *only* from its distal end—an anomaly which was explained in a few moments; the second stroke of the knife was around the left jaw, then a perpendicular incision in the median line, formed with the preceding an incised cross over the tumor, with four corners of flaps to be dissected up; dissecting these, first upon the left side, and then the right, Prof. Freer next passed a strong ligature around the left ramus, with a stout blunt curved needle, hugging closely the jaw. To the ligature a chain saw had been attached, it was drawn around the ramus, the handle fastened, and in a few seconds the ramus was divided.

In the artery which bleeds now, we recognize the inferior dental; while assistants are applying to it the actual cautery, Prof. Freer finds time to say, "Do not extend your incisions upon the ramus of the jaw high enough to cut the facial nerves; it is not necessary even when removing the jaw at the articulation."

The right ramus was cut through in the same way, and the rest of the operation can only be described by saying that with knife, blunt spud, and fingers, the surgeon excavated the lower jaw and tumor. In getting out the right sub-maxillary gland, the facial artery was cut again, and *now* bled from the proximal side; it had been *ligated* by the hardened gland; wherein, we saw the explanation of the previous anomaly.

Following every stroke of the operator's knife, his distinguished colleagues promptly met each danger as it arose, and the whole of the formidable operation was completed with the loss of not more than two ounces of blood. After the removal of the tumor, the actual cautery was applied to the tissues and the wound closed by hare-lip sutures.

(HISTORY OF THE CASE. Reported by Dr. MONTGOMERY, House Surgeon.)

John Gill, 50 years of age, laborer, native of Ireland, was admitted into Hospital May 10th, 1872.

The patient is able to talk so as to be but imperfectly understood, but by questioning closely we are able to obtain the following history:

Patient resides in the State of Michigan, and has lived there for a good many years. Says that he has never been sick, but rugged, and thought he could stand almost anything until his present trouble came upon him. A little over four months ago he first noticed a small lump on the left side of the gum of the lower jaw. It was not painful when he first noticed it, but it began to enlarge very soon and extend toward the right side and become painful. In about three weeks almost the whole of the lower gum was affected, and the front teeth were so pushed up that he could pull them out with his fingers. The tumor has rapidly increased in size until this time, when it protrudes from the mouth in a forward and downward direction, pushing the lower lip down as low as the chin. It resembles, closely, a huge tongue with a raw surface protruding from the mouth and pushing the lip down. The tongue is crowded backward, almost closing the glottis. The sub-maxillary and sub-lingual glands are also involved. The pain has increased with the size of the tumor, but is more severe at night; is sharp and stabbing in character. Patient has to take large doses of morphine to secure rest at all. Appetite has been good all the time and is at present, but the patient is only able to take fluid nourishment, and swallows that with difficulty. Has much dyspnœa. Is much emaciated, and apparently almost exhausted.

May 14. It has been decided to try to remove the tumor. Operation performed about 3 P.M. Ten P.M. Pulse 104; respirations 16. Patient has fully reacted from the operation, and is sleeping; injections of beef-tea have been ordered.

May 15—8 A.M. Pulse 120; respirations 16. Is rational, and able to swallow fluids if put into the mouth with a spoon. 9 P.M. Pulse 148; respirations 28. Patient has taken considerable nourishment.

May 16—8 A. M. Pulse 130; respirations 20. Did not sleep much, but shakes the head when asked if he has much pain.

May 17. Pulse 132; respirations 28. Rested quietly but is very weak; will not take nourishment. Died 5 P. M.

(ITS PATHOLOGY. Report of Dr. DANFORTH.)

I find the usual elements of rapidly-growing cancer, namely: First—Innumerable minute granules.

Secondly—Small nucleated cells, generally with only a single nucleus. These small cells, according to the common idea, would scarcely be taken for those belonging to a malignant growth. They seem to be young cells, in process of formation, and hence, those which present the least departure from the so-called "benignant" type.

Thirdly—Various forms of large cells, conforming to no particular law of type, assuming all varieties of shapes, and evidently growing in all directions in which absence of resistance renders growth possible. Some of these large cells contain a single nucleus, but most of them have several nuclei. Some of them contain oil drops, and are, therefore, undergoing "fatty degeneration"—a form of "retrograde metamorphosis" not uncommon in cancer. Some of them are round, some oblong, some spindle-shaped, some caudate, some angular, in fact, scarcely any two of them are alike, and if I describe any one of them, the description will not apply at all to its next neighbor. Therefore, *because* I cannot describe them; *because* of their lawless mode of growth; *because* of their reckless behavior *during* growth and *after* they are grown; *because* they have cast off their allegiance to all recognized laws of growth (or law of type), they are cancer cells.

Fourthly—Several cylindriform bodies containing many nucleated cells—the "nucleated cylinders" of Koester.

Fifthly—One specimen which I received came from that portion of the growth surrounding the symphysis of the jaw, which, on account of the extreme erosion of the lip, was constantly exposed to the atmosphere. A dense blue mold quickly sprang up upon this part of the specimen, and microscopic section revealed filaments of the parasitic plant penetrating the mass in every direction. As I immediately placed the specimen in a closely covered cap-

sule, and covered it with glycerine and acetic acid, I do not think the germs found access to it after it came into my possession. Nor do I believe that the presence of the plant had any direct relation with the pathology of the case—but that it was purely accidental, the result of constant exposure previous to the operation.

Proceedings of Societies.

Annual Meeting of the Military Tract Medical Association, at Galesburg, Ill., June 11, 1872.

Pursuant to adjournment, the Seventh Annual Meeting of the Military Tract Medical Association convened at Masonic Hall, in Galesburg, June 11th, at 10 o'clock, A. M. In the absence of the President, Dr. Phillips, of Galesburg, was called to the chair. The Board of Censors being absent, Drs. Reece, McClelland and Klingberg were appointed. The board then presented the names of Drs. Bunce, Heller, D. T. Brown and Sapp for membership. The association received them by a unanimous vote.

The regular order of business, the election of officers for the ensuing year, was laid over until the afternoon session. Dr. W. L. Cuthbert then offered a series of resolutions concerning abortion, which after some discussion were referred to a committee consisting of Drs. Cuthbert, Reece, Hurd, Bacon and Bunce; upon retirement of the committee the association adjourned until 2 o'clock.

AFTERNOON SESSION.

The association re-assembled at 2 o'clock, with Dr. Phillips in the chair. On motion, the association proceeded to the annual election of officers, with the following result:

John W. Hensley, of Yates City, President.

M. A. McClelland, of Knoxville, Vice-President.

Dr. Herbert Judd, of Galesburg, Secretary and Treasurer.

Dr. Hensley returned thanks on taking the chair, in a brief address, promising to discharge the duties to the best of his ability. He then called for the reports of the committees, when Dr. Reece, chairman of the committee to whom Dr. Cuthbert's resolutions were referred, made a favorable report.

On motion, the report was received and the committee discharged. These resolutions are of the greatest interest, and are as follows :

WHEREAS, The procuring of criminal abortion is becoming more prevalent, and in our vicinity as elsewhere, unscrupulous specimens of human depravity—abortionists—are plying their murderous traffic ; and that from the members of the medical profession the public expect an expression of their opinion in regard to this evil ; therefore,

Resolved, That we recognize the procuring of miscarriage or abortion in any stage of pregnancy as criminal in the highest degree, unless absolutely demanded to save human life, and then only by the advice of two or more regular physicians.

Resolved, That we, as physicians, pledge all our efforts to assist and sustain our legislators and executives in all measures that tend to the suppression and prevention of this heinous crime, with its fearful consequences.

Resolved, That we are bound by a sense of duty as physicians and citizens to condemn the abortionist and his abettors, deeming them unworthy of our association and respect ; and to use all reasonable means to expose their murderous schemes and bring them to punishment.

Resolved, That while we denounce their murderous traffic we will strive to inform the public of its train of consequences ; for the violation of physical and moral laws is certain to meet its just penalty—prolonged and intractable diseases of body and mind, and often death.

Resolved, That a copy of this preamble and resolutions be forwarded to each paper published within our bounds, the *Chicago Medical Journal* and *Chicago Medical Examiner* inclusive, with a request for gratuitous publication, that the position of the Military Tract Medical Association may be known on this matter of vital importance to the public.

From the Standing Committees on Surgery, Practice of Medicine, Materia Medica, Obstetrics and Diseases of Women and Children, many valuable and interesting reports were made, both written and verbal. More time was spent in discussion than at any previous meeting.

Under Miscellaneous Business, Drs. Reece, Judd, Phillips, McClelland, and Webster, were appointed a committee to revise the constitution and by-laws.

Drs. Phillips, Morse and Hurd were appointed a committee to report at the next meeting upon the death of Dr. John W. Spalding.

The following are the Standing Committees, to report at the next meeting to be held in January:

Censors—M. Reece, M. A. McClelland, A. Klingberg.

Essayists—W. L. Cuthbert, J. R. Webster.

Surgery—M. A. McClelland, J. M. Morse, Wm. Hamilton.

Practice of Medicine—E. L. Phillips, B. F. Brown, J. K. Seacord.

Materia Medica—Henry B. Upton, D. W. C. Bacon, Charles Bunce.

Obstetrics, and Diseases of Women and Children—W. H. Heller, D. T. Brown, T. J. Maxwell.

Ophthalmology—L. S. Lambert.

Upon motion, the association adjourned, to meet in Galesburg on the second Tuesday in January next.

Selections.

Results of Experiments on Pyæmia. Pathological Society of London, Tuesday, May 7th, 1872.

Dr. Burdon Sanderson delivered an address on this subject relating his first experiments as to the effect of inoculating animals with pyæmic liquids. In the autumn of 1867, he injected the purulent liquid contained in the ankle-joint of a patient, who had died a few hours before with metastatic abscesses, general suppurative arthritis, and intense septicæmia, under the skin in a dog and two guinea-pigs. The two guinea-pigs died within fifteen and twenty days. Both had metastatic abscesses; in one the lungs were beset with minute nodules, resembling miliary tubercles. The dog lived seven weeks; there were no secondary abscesses, but miliary tubercles of the liver and spleen. From one of the guinea-pigs, two others were inoculated; one died of pyæmic subcutaneous abscesses, without visceral disease; the other lived

longer, had no abscesses, but tuberculous disease of the lungs. During the same winter, other experiments were made, which seemed to show that, by the inoculation of pyæmic products two sets of lesions might be produced: as an immediate result, metastatic abscesses, accompanied by a general typhoid state, which was often fatal; as an ulterior result, either disseminated nodules, at first hard, but afterwards becoming caseous at their centres, or interstitial induration—both forms of lesion having their seat chiefly in the lungs, spleen, and liver, but also occurring in other viscera.

Dr. Sanderson next said that experiments were made in 1871, as to the existence of bacteria in animal liquids, and the circumstances had shown that, whereas bacteria could not be proved to be present, either actually or in germ, in the healthy liquids or tissues, or in the products of healthy inflammation, they were present potentially in pyæmic liquids—that is, whereas ordinary pus could be kept for days or even weeks free from bacteria, provided the precautions against "spontaneous generation" were observed, pyæmic pus could not be so kept, and, moreover, possessed the properties of at once determining the development of bacteria in any suitable liquid to which it was added.

On the last occasion on which he had brought the subject of the intimate pathology of tubercle before the Society, he argued that tuberculosis is an irritative overgrowth of a pre-existing tissue. It had then been shown that the process, in its disseminated or interstitial form, had its seat in a certain tissue, and this tissue had been termed adenoid or lymphatic—both words implying its intimate and special relation with the lymphatic system; but the precise anatomical nature of this relation had been imperfectly made out. Last May Dr. Klein came to England with the object of co-operating in the investigation of this very question. The field taken up was the peritoneum; the reason of the choice being, that that membrane, and especially the omentum and diaphragm, had already been the subject of investigation, as favorite seats of tuberculosis. Those researches had not merely served to elucidate one or two anatomical facts of very great importance to the pathologist—*e. g.*, the existence of a lymphatic system in the omentum and its distribution, and the mode in which the peritoneum communicates with the lymphatic system—but had rendered it possible to give an account which, so far as the peritoneum was concerned, was tolerably exact and complete, both of the normal process of absorption and of the changes which the absorbing tissues undergo when they are entered by infective agents.

It was found that in one set of cases, the secondary lesions were suppurative, the constitutional disturbance intense, and the fatal result rapid; in another, that the lesions were vascular new

growths, firm at first, afterwards becoming caseous, the progress slow, and the functional disturbance imperceptible. And then it appeared that in all those instances in which the pyæmia—*i. e.*, the acute character—manifested itself, bacteria were present, not merely in the purulent liquids, but in the blood. Under these circumstances, attention was directed from effects to the poison itself. Soon after the opening of the Brown Institution, it was found that the practice of the hospital for animals was likely to afford the required material; in short, that pyæmia occurred in dogs under circumstances very similar to those which determined it in human beings; and exhibited similar symptomatical and pathological aspects. A series of experiments were therefore commenced in January last, having for their object to acquire a knowledge of the morbid poison, and particularly to discover by what conditions the variations of its intensity were governed.

Dr. Sanderson proceeded to say: "The word pyæmia is apt to be used in somewhat different senses, according as the person using it has before him the medical or surgical aspect of the disease. To define it completely we must, I think, take into account its mode of origin, its symptoms, and the anatomical changes which it produces; not confining our attention to either of these to the exclusion of the rest. With this consideration in view I would comprehend in my definition the following propositions:—

"1. Pyæmia originates by the introduction into the living tissues, and eventually into the blood, of a *poison* which is itself a *product of inflammation*.

"2. The action of this poison manifests itself in an alteration of the blood, and in disorder of the vital functions. The former of these is characterized by the presence of bacteria, and by change in the optical characters of the blood, which often becomes obviously more transparent and darker by reflected light than it is naturally. Of the latter, *viz.*, the general disorder of the vital functions, the most prominent phenomenon is fever, which, in the more intense forms of the affection, is followed by collapse which culminates in death.

"3. More remotely, the disease manifests itself in secondary suppurations, *i. e.*, in the formation of metastatic abscesses, which may occur either in the internal organs or underneath the skin. The special characters of these metastatic (as I am in the habit of calling them) infective abscesses, are those which are well known both to surgeons and physicians. They have the additional less known character, that the pus they contain is full of bacteria.

"Pyæmia *differs* from tuberculosis in the rapidity of its progress, and in the obvious character of the anatomical changes of which it consists. Whereas by tuberculosis we are understood to mean anatomically the overgrowth of cells in certain tissues, which we designate lymphatic on account of their proved anatomical

relation to the lymphatic system, the secondary inflammations of pyæmia result in the formation of infective abscesses.

"Pyæmia resembles tuberculosis in its mode of origin. Both spring from inflammations; and, so far as relates to the anatomical characters of the lesions, both are inflammations. To both, therefore, the term secondary or infective inflammation is applicable.

"So much for the disease itself. Let me now," said Dr. Sanderson, "draw your attention to the nature of the poison. I wish to show (1) that every pyæmic abscess contains a poison, to be present in the products of acute secondary inflammation in the lower animals, also exist in similar products in man? The second is more important still—Can it be shown that human pyæmic products, when tested by inoculation, possess exactly the same morbid properties as those which are possessed by the liquids to which our experiments relate? It is for answers to these inquiries that I earnestly ask the assistance of hospital surgeons.

"This intensification is effected by a process which may be called cultivation. Dr. Klein made the important discovery that, if a pyæmic liquid were transferred to the peritoneum of a guinea-pig, and allowed to remain there for a couple of days, although it did not at first produce any intense symptoms in the animal itself, its toxic intensity increased in such a degree that, when the transudation-liquid produced in this was injected into another animal, it had acquired the most deadly activity; and that all such extremely active liquids were crowded with bacteria of a particular character, the increased number of which seemed to be in proportion to their toxic properties."

Dr. Sanderson then exhibited a dog, into the abdominal cavity of which six drops of a pyæmic transudation-liquid had been injected three hours before. The animal was in a state of profound collapse, accompanied with vomiting, purging, and cramps of the extremities. Shortly afterwards, the animal was killed and the abdominal cavity opened. The peritoneum contained liquid slightly stained with blood, which, on microscopical examination, was found to be crowded with bacteria. The intestines were distended with a frothy liquid, which possessed none of the characters of the natural contents which had been found in other cases to be charged with shed epithelium. The internal surface of the whole of the alimentary canal from the stomach downwards was intensely injected, and presented appearances which (as had been found by more careful investigation in previous cases) were due to the separation of the epithelium from the surface of the mucous membrane, and the infiltration of that tissue with liquid.

The material which produced these results was obtained as follows: Pus from a pyæmic abscess of spontaneous, *i. e.*, accidental, origin was introduced into the peritoneal cavity of a guinea-pig, and allowed to remain there for two days. It was then with-

drawn from the guinea-pig, and some of it at once injected into the peritoneum of a dog. The dog was affected in exactly the same way as the animal exhibited to the Society. The remainder of the liquid was kept for five weeks in hermetically sealed tubes, after which six drops were injected into the peritoneum of a guinea-pig; this showed its action to have become relatively feeble. After two days (the day before the meeting) the transudation-liquid produced was tested with a third guinea-pig and found to be extremely active. On the afternoon of the meeting it was injected into the peritoneum of the dog exhibited.

"Such are the facts," said Dr. Sanderson. "The all-important question remains—Do these experiments concern us as physicians and surgeons or not? I think they do. But what I want is to prove it; for I am well aware that, unless clinical observation come in aid of pathological experiment, the results of the latter do not tell practically. Let me state what are the lines of inquiry which I desire to see taken up. The first question is—Do the characters which we have shown, when introduced either into the circulation or into a serous cavity, produce the symptoms of pyæmia? and (2) have we this poison so entirely in our possession, and so far under control, that, beginning with an agent so mild in its action that it produces no marked symptoms, we can convert it into an agent of such intensity that it kills in two or three hours with the formidable symptoms seen in the case we have now before us?

"Finally, I would say a word as to the limits of the question now before us. With regard particularly to the question of bacteria, I desire to keep to the bare facts of disease, and not to diverge into discussions as to their origin. It is a matter to me of comparative indifference how they originate. Our observations lead us to conclude, first, that they afford a *characteristic* by which we may distinguish the products of infective inflammations from those which are not infective, and that their number affords an indication of the degree of infectiveness; and, secondly, that their presence in the blood is an indication of that constitutional disturbance which accompanies infective inflammation—not merely when that disturbance assumes the degree of intensity of which we have an example before us, but in the slighter form of irritative fever. If these facts prove to be true, not only in the lower animals but in man, their importance is quite unaffected by any theory which we may entertain as to the origin of bacteria."

The President said Dr. Burdon Sanderson had entered upon a large inquiry in a clear and distinct manner. It was a striking fact that five or six drops of this peritoneal fluid should produce upon a dog the effects that had just been seen.

Dr. Crisp said he differed from Dr. Sanderson in several of his conclusions. In the first place he saw little or no resemblance between pyæmia and tuberculosis; they had scarcely one feature

in common—the one a highly infectious disease, and the other not communicable. There were some in the profession who thought otherwise, but the statistics relating to the attendants at the Brompton Hospital (Medical and non-Medical) were sufficient to refute this conclusion. Pyæmia, too, was uncertain as to the time of its appearance; it might occur from the second day to the third week after an operation, and after a battle the first thousand wounded might be free from it, and the remainder be more than decimated by it. It should also be known that there was a great difference between tubercle in man and that in the lower animals; he had shown long ago that in monkeys and other animals no bleeding occurred from the lungs, that cavities were comparatively rare, that the liver and spleen, rarely affected with tubercle in man, were frequently so in the lower animals, and that in other particulars there were important differences. He (Dr. Crisp), as shown in their "Transactions," had inoculated guinea-pigs with pure pus from a whitlow on his own finger, and had produced tubercle, but in many respects it differed from tubercle in the human subject, although microscopically it was the same. He had also performed numerous inoculations in birds and in other animals, the results of which led him to the same conclusion. It was also important to bear in mind that there was a wide distinction between diseases of the lower animals and those affecting the human subject. Pyæmia in the lower animals was of rare occurrence, although millions of animals were castrated and spayed yearly. Pigs had the ovaries removed, and salt was often rubbed into the wound, and he (Dr. Crisp) should have more faith in the use of salt during the prevalence of pyæmia than in the use of carbolic acid or in any application hitherto tried. What we wanted were experiments to ascertain whether by the use of chemical agents we could render this poison innocuous—whether by any external application we could prevent the occurrence of pyæmia. Again, as regards *bacteria* being the cause of pyæmia, he entirely differed from Dr. Sanderson. *Bacteria* were found in numerous diseases of the lower animals, as had been fully shown by the French pathologists, and they were probably the effects and not the cause of the disease, as he (Dr. Crisp) had long since endeavored to show. He was the first in this country to describe splenic apoplexy, and to point out its deleterious effects upon man and other animals. Experiments had been made by French pathologists, who showed that after the inoculation of rabbits with the blood of animals dying of this disease, that *bacteria* were found in the blood after a certain time, and that death took place at a given period. Dr. Sanderson's experiments appeared to him to have no important bearing upon pyæmia, the irritating matter he used acted more like a poison, such as prussic acid or arsenic, and killed nearly in a definite time, as others had shown before. To

show how differently various substances acted when introduced into the body, he might mention that, unhappily, very recently in his own neighborhood, a gentleman in opening an erysipelatous abscess of the scalp, received some of the pus into his eye, and he was dead in four or five days. He recollected a similar example that occurred to a French surgeon when he (Dr. Crisp) was attending the Paris hospitals. Many years since, two gentlemen at the Zoological Gardens dissected a lion—one died in a short time from blood poisoning, and the other did not recover for four or five years after the reception of the virus. After this, about fifteen years ago, many of the carnivorous animals (lions, tigers, and jaguars) at the Zoological Gardens died after a short time of blood poisoning, which he (Dr. Crisp) believed was occasioned by their eating the flesh of glandered horses. He dissected several of these, and, as there was a doubt about the nature of the disease, he inoculated a cat and two rabbits, which animals died quickly, or rather, were put to death with all the symptoms of glanders.

Dr. Bastian asked Dr. Sanderson whether he saw in the blood of animals suffering from pyæmia real bacteria or only granules. In the present state of science this was a fundamental distinction. Again, what relation did these bacteria bear to pyæmia as a disease? Were they to be regarded as causes of pyæmia or as consequences? Again, granting that bacteria existed in the blood in pyæmia, and that they were its causes, how did the contact of these bacteria cause pyæmic processes? Bacteria were constantly in communication with open wounds and mucous surfaces; they existed abundantly in the mouth and back of the throat of every individual, and if they caused pyæmia nobody would be able to live. Many experiments had been made in which fluids containing actual bacteria had been injected into animals and no disease had been produced. Dr. Bastian had injected several drops of fluid teeming with bacteria under the skin of frogs, and no disease had been produced. No one in this room, he supposed, would say that it was an habitual thing to find bacteria in the blood of persons dying of typhoid fever or rheumatic fever; and yet in both of these diseases where the temperature had been high during life, in a few hours after death bacteria had been found in abundance in the internal organs. How were those bacteria produced in the blood in these cases, granting that they were essential to the production of pyæmia? How was it to be supposed that the infection was brought about? On the other hand, in cases where the health suffered, and where there was an open wound, there was always the likelihood of changes taking place in consequence of poisonous absorption through the wound.

Mr. Hulke asked Dr. Sanderson if he had not confounded pyæmia and septicæmia. It seemed to him that the dog suffered from the latter, and not from pyæmia. If perfectly filtered pus

were injected into an animal, the ordinary symptoms of pyæmia were produced, and the animal recovered; but if the pus were unfiltered, these symptoms were produced *plus* others—such as multiple abscesses, constituting septicæmia. Any putrescent fluid, animal or vegetable, would produce the same result.

Mr. Spencer Wells having performed an operation, after he had partially opened the wound and inserted an elastic catheter, removed an ounce of reddish fluid. Dr. Richardson prepared from it an alkaloid, one *milligramme* of which killed a rabbit. It had effusion into its peritoneal cavity, and a little of this killed another rabbit into which it was injected. A third was killed from the fluid from the second; and a fourth from the fluid from the third; but the fifth recovered after the injection of fluid from the fourth rabbit.

Dr. C. J. B. Williams remembered a *post mortem* examination in University College Hospital, after which the operator complained of a tingling and heat in his hands. The fluid in this case was examined and found to be intensely acid, and to contain many bacteria.

Dr. Murchison had often had an opportunity of examining the bodies of patients who had died of pyæmia following typhus fever, in which there were no ulcerated surfaces, no bed-sores, and no open wounds whatever, and yet in these, pus had been deposited in the joints, under the skin, and sometimes in the internal organs. Every one who had observed epidemics of typhus fever must have seen that pyæmia followed many cases, and that when one case had occurred in a hospital there were many.

Mr. Henry Lee thought that Dr. Sanderson's experiments established that the products of inflammation differed from those of the putrid element, this last being much more fatal.

Dr. Anstie had seen all the symptoms of pyæmia produced where there was no wound whatever, and where no putrid fluid could have entered the system. The only assignable cause sometimes was a cold. Other cases come from exposure to drain smells. He mentioned one case at Westminster Hospital brought from a particular club-house, in which the underground premises were exceedingly unhealthy. A series of cases of a similar kind had come from the same house.

Dr. Cayley wished to know what effect the poisonous fluid had on the animal from whose abdomen it had been taken.

Dr. Sanderson in reply said, he was well aware, from his own experiments, that the ordinary bacteria of putrefaction possessed no toxic action, and that liquids containing them could be injected into the circulation of living animals without result. As regarded the bacteria of pyæmic products, he had carefully guarded against the inference that they were the efficient causes of pyæmia. He regarded them only as characteristic inhabitants of infective liquids, and there-

fore very probably carriers of infection. He understood the word septicæmia to mean a state of the blood which was only present in the most intense forms of pyæmia, and agreed with Mr. Hulke in regarding metastatic abscesses as an accident rather than as an essential of pyæmic infection. The theory that the pyæmic poison was dependent on an alkaloid, would be disproved in case it should appear that it was incapable of diffusion, but further inquiries were necessary.

The following week, May 21st, Dr. Sanderson gave a supplementary statement. His object was to show the presence of bacteria in the infecting fluid of pyæmia, in the blood of living pyæmic patients, and in pyæmic abscesses; and, secondly, to prove that these living organisms were not introduced into the body from without, but were apparently produced within the body. It will be remembered that in certain experiments recorded in one of the reports of the Medical Officer of the Privy Council, Dr. Sanderson had shown that bacteria were introduced into fluids by contact with impure surfaces, and that when glass-rods, test-tubes, and the like, had been heated before being brought into contact with fluids, no bacteria were therein developed. Dr. Sanderson, we believe, had taken care in his experiments on pyæmia to avoid the introduction of germs from without into the peritoneal cavity. He first showed the liquid taken from the peritoneum of a guinea-pig twelve hours after the injection of fluid into it from the peritoneum of a kitten in which peritonitis was excited by the injection of peritoneal fluid. This liquid was swarming with minute bacteria, chiefly spheroidal, this being the feature of the liquids possessing the most intense infective character. The second specimen was the blood of an animal infected as the guinea-pig, and bacteria existed in the blood of the living animal taken from the heart. The existence of these organisms in the blood was regarded as the index of the general state of infection. The third fluid was that contained in the peritoneum of a guinea-pig twelve hours after injection into that part, of the subcutaneous fluid formed in connection with an abscess produced by the introduction of the solution of ammonia beneath the skin, the injection being made with calcined instruments, and with the special object of avoiding the introduction of external agents; and this fluid contained bacteria. A fourth fluid was exhibited—viz., the liquid from an abscess of the thigh of a puerperal woman, removed seven weeks after her confinement, the fluid being obtained through a fine canula into a glass tube, both of which had been superheated, the latter being at once closed. This fluid contained living organisms in it at the first moment of examination.—*The Doctor*, London, June, 1872.

Small-Pox—Vaccination and Revaccination—False Ideas.

The following notes regarding vaccination and revaccination have been put together for the purpose of showing how false many of the prevailing ideas on the subject are, and saving time and trouble to those who are engaged in trying to find out the real truth regarding it.

It appears now to be fully acknowledged by medical men—

1. That vaccination, though it greatly lessens the susceptibility of taking small-pox, does not render the reception of it in after years altogether impossible.

2. That vaccination in most cases greatly modifies the character of the small-pox eruption and lessens the severity of the attack.

3. That revaccination gives an absolute (?) immunity from small-pox.

The reasons for coming to these conclusions are as clear as they possibly can be, and there cannot be the smallest allowance made for people who willfully oppose such arguments as the following:

Dr. A. C. C. De Renzy, Sanitary Commissioner in the Punjab says: "In this Province, with a population of 18,000,000, the deaths from small-pox are never less than 20,000 a year. In 1869 they numbered 53,195." In England the annual average mortality does not exceed 5,000, though previous to the introduction of vaccination it was quite as high as in the Punjab.

The facts, again, concerning vaccination in Scotland and Ireland, supplied to Dr. Anstie by Dr. Seaton, of the Privy Council, speak for themselves as plainly as facts possibly can do.

In the former country it appears there was no vaccination act prior to 1863, and the average yearly deaths from small-pox in twelve years, 1853-64, were 1,054. In 1865, '66, '67, and '68, they were respectively 175, 200, 124, and 25.

In Ireland vaccination was not compulsory before 1863, and in the periods of 1830-40, 1840-50, and 1850-60, the respective annual average mortalities were 5,800, 3,827, and 1,272. In the years 1864, '65, '66, '67, '68, they were respectively 854, 337, 187, 20, and 19. In the first quarter of 1869, again, there were only three deaths, and in the second none. Let any one who is skeptical as regards the advantages to be derived from vaccination pass in review the valuable evidence of Mr. Marson, at the small-pox hospital, London. In 5,000 cases of post-vaccinal small-pox, under observation from 1836 to 1855, it appears that there were

35 per cent. of deaths among those that were unvaccinated; 25.57 among those that stated they had been vaccinated, but exhibited no cicatrix. Among those that had 1 cicatrix, the number of deaths per cent. was 7.73; 2 cicatrices, 4.70; 3 cicatrices, 1.95; 4 or more cicatrices, 0.55.

The percentage of deaths among those that had well-marked cicatrices was 2.52, and 8.25 among those who had badly-marked cicatrices. Among those who had small-pox previously, it was 19.

In Pinchbeck, Lincolnshire, with a population of about 3,000 inhabitants, only one death has occurred from small-pox during the last thirty years, and this was in the case of an unvaccinated person. The medical officer of the district has three times received the government grant for efficient vaccination. Dr. Seaton, in his evidence before the Select Committee, stated that vaccination had the effect of reducing the mortality of children under five years of age.

In Scotland, the infantile mortality has been reduced from 70 and 80 per cent. to 55. In Greenock, the mortality under five years of age has been reduced to 36 per cent., and in Glasgow to 28 per cent.

In the "Lancet" of the 8th of April, 1864, the following statement occurred: "Not a single revaccinated case has been admitted into the small-pox hospital at Homerton, and no death of a vaccinated person has occurred under seventeen." "This," as the editor remarked, "shows the protective power of even imperfect vaccination up to puberty, and the necessity for revaccination at this time."

The strongest case one can advocate in support of revaccination, is the fact that not a single nurse has died at the small-pox hospital for the last thirty years, in spite of the infection to which they are constantly exposed. As regards the lymph fit for the purpose of vaccination, a good deal of doubt seems to exist. Some say that carefully-selected matter from revaccination cases is as sure in its effects as that taken from primary vesicles; others, that secondary vaccine matter is of very little use, and that only that taken from the arms of infants should be used; while others assert that the lymph taken from the arms of children has become deteriorated by passing through so many systems, and that a fresh supply should be obtained from the original source. Now, with regard to the use of secondary matter, there can be no doubt that it is capable of setting up the same constitutional disturbance, and producing the same kind of vesicles, as lymph taken from primary cases, but still it not infrequently happens that the vesicles are unduly hastened or otherwise irregular in their development. And from a review of the facts mentioned in the "Lancet," 29th of July, 1871, by Dr. Barbour, of the Stockwell Fever Hospital,

I would say that the amount of protection to be gained from its use is very small, and that it should be employed under very exceptional circumstances; where none other for the time being can be obtained, and revaccination is imperatively demanded, Bryce's test should certainly be employed, in order to see whether it has efficiently performed the purpose for which it was intended or not; in other words, lymph should be again inserted into the arm a few days after the first vaccination. If both vesicles mature and also die away at the same time, then the first vaccination may be considered to have produced the desired effect; but if the second vesicle goes through all the stages of the primary vesicle, then the first operation has been a mere local affection, and has really exercised no protective influence whatever. The following case occurred in my own experience:

A lady who had apparently been successfully vaccinated with secondary lymph, was one month subsequently revaccinated with primary. The resulting vesicles were as perfect in every respect, and went through exactly the same course as those occurring from a regular primary vaccination.

This was a proof, then, that the first operation produced a local effect only, and that it was incapable of affording protection against the infection of small-pox. In answer to those who affirm that vaccine matter loses its effect by constant use, I would say, for the same reason, the poison of fever ought to become less virulent and infectious each succeeding year; but this is not the case, for though, owing to altered atmospheric influence, prevailing epidemics may, for a time, die out, they soon return when the conditions are again favorable, with all their former activity. But, in addition to this, let us see what opinion Jenner held upon the subject.

After a careful watching of vaccination for upwards of twenty years or more, during which time lymph had been successfully transferred from subject to subject, he came to the conclusion that it underwent no change whatever in its qualities. Marson, Creely, and others also, whose experience is very great, have proved, so far as such matters admit of proof, that vaccine lymph does not lose any of its prophylactic power by a continued transit through successive subjects. When lymph degenerates in transmission, it is invariably due either to want of proper care in the selection of subjects or to inattention to certain details essential to successful vaccination. But let us now, for a moment, consider the evidence of those who have experimented with lymph taken directly from the heifer.

During the siege of Paris, Dr. Quinquand had all successful cases with the human lymph, but only one-third with heifers'.

Dr. Thevenot, with calf vaccine, had only two successful cases out of twenty-one.

Of thirty-two surgeons in Paris who sent in their reports, one says that vaccine from the calf became better after passing through the systems of three or four different children, though bad and difficult to introduce for the first time. The rest (thirty-one) agree that vaccination from the calf was provokingly unsuccessful, succeeding at the very utmost only in a fourth of the children vaccinated directly. Of sixteen others who tried the calf virus, thirteen failed completely.

Dr. Gaillard, who succeeded 170 times out of 283 with calf vaccine, was successful in 2,740 times out of 2,856 with Jennerian vaccine.

The next question, about which some amount of uncertainty prevails, is as to whether syphilis and other diseases can be conveyed by vaccination. Mr. Hutchinson has lately brought forward a series of cases to prove that syphilis is capable of being so conveyed, and, to say the least, they certainly appear to wear a very suspicious aspect. Still, it must be remembered that in 1857, Mr. Simon (medical officer of the Board of Health), addressed a series of questions upon this very subject to a large number of medical men, both in this and other countries, and received answers from no less than 539, with scarcely an exception, entirely in the negative. They declared that syphilis could not be conveyed by means of true vaccination; but they pointed out that, by gross carelessness, it might be inoculated instead of vaccine. The direct experiments, moreover, of Cullerier and others with mixtures of syphilitic matter and vaccine, and vaccine matter taken from persons suffering from constitutional syphilis, are most powerful arguments against the idea that syphilis is able to be transmitted by means of lymph taken out of a true Jennerian vesicle. To show that two poisons cannot be present in a true Jennerian vesicle, lymph may be taken from a vesicle developed in a person who has been vaccinated too late to prevent small-pox, and used without the slightest hesitation for vaccinating another child.

It would certainly appear, from these facts, that vaccination as such can convey syphilis with it through a syphilitized lancet, or blood taken up with lymph from a syphilitic infant, may cause it to break out in persons subsequently operated upon. It might, nevertheless, be well to do as Mr. Hutchinson suggests—viz., to avoid taking lymph from first-born children, and take it only from second or later children, in families of which the oldest has enjoyed good health.

As regards the idea of scrofula being conveyed by vaccination, there can be no doubt, as the "*Lancet*" says, "that it is a mistake. Its development is, on the contrary, greatly prevented, inasmuch as small-pox, by weakening the system, was often the occasion of scrofulous and tubercular disease. Again, when skin

eruptions are occasioned by vaccination, the fault is not necessarily with the matter, but with the constitution of the child vaccinated, which cannot bear even the slight disturbance of vaccination with impunity; and *a fortiori* cannot bear the destructive disturbance of small-pox, which is the almost certain alternative."

Among the instructions lately issued by the Lords of the Privy Council are to be noticed the following:

"Never take lymph from cases of revaccination. Never use or furnish lymph which has the slightest admixture of blood. Take lymph only from well-characterized, uninjured vesicles, at the stage (one day week after the vaccination) when they are fully formed and plump, but with no perceptible commencement of areola. Take lymph only which, as it issues from the vesicle, is perfectly clear and transparent, and none which is at all thin and watery. Never squeeze or drain any vesicle. From such a vesicle as vaccination by puncture commonly produces do not, under ordinary circumstances, take more lymph than will suffice for the immediate vaccination of five subjects or for charging several ivory points; or for filling three capillary tubes; and from larger or smaller vesicles take only in proportion to their size. Be careful never to transfer blood from the subject you vaccinate to the subject from whom you take the lymph. Note any case wherein the vaccine vesicle is unduly hastened or otherwise irregular in its development; and if similar results occur in other cases vaccinated with the same lymph, desist at once from employing it. Change the lymph if on the day week after vaccination the vesicles are not entirely free from areola. Keep the lancet and other instruments scrupulously clean, and do not use them for other surgical operations. Cleanse the instrument used thoroughly after one operation before proceeding to another.

"Except so far as any immediate danger of small-pox may require, vaccinate only such subjects as are in good health. As regards infants, ascertain that there is not any febrile state, nor any irritation of the bowels, nor any unhealthy state of skin—especially no chafing or eczema behind the ears, or the groin, or elsewhere in folds of skin. Do not, except of necessity, vaccinate in cases where there has been recent exposure to the infection of measles or scarlatina, nor where erysipelas is prevailing in or about the place of residence.

"Take lymph only from subjects who are in good health, and, as far as you can ascertain, of healthy parentage, preferring children whose families are known to you, and who have elder brothers and sisters of undoubted healthiness. Carefully examine as to skin disease and signs of hereditary syphilis."

There can be no doubt that the present epidemic has had the effect of causing several disputed points to be finally set at rest,

and among these, the question as to whether it was right to vaccinate women who were pregnant. The old idea was that vaccine, being a poison similar to that of small-pox, would cause abortion to take place; but this has been contradicted by all the first obstetricians. Next it was thought unsafe to vaccinate children much under six weeks, whereas the medical officer of the Privy Council has distinctly advised that children who are exposed to the influence of the small-pox poison should be vaccinated within a week of their birth.

It was also supposed to be dangerous to revaccinate elderly people, but this has been shown to be incorrect. There can be no question that grown-up people suffer, generally speaking, more from vaccination than children, just as they do when attacked by measles, whooping cough, etc., and this, I believe, has given rise to the idea of vaccination affecting people worse during what is called a varioloid state of atmosphere.

The materials used for collecting lymph are—first, ivory points; second, glasses; third, capillary tubes. The last named are the best, inasmuch as the lymph is always kept in a fresh state.

The methods employed for vaccination are—first, puncturing; second, scratching; third, blistering.

The last mentioned (introduced by Mr. Ellis, of London,) is supposed to render the absorption of the lymph more certain, but it most undoubtedly entails a greater amount of trouble, and I cannot say, from my own experience, that it insures a greater amount of success than either puncturing or scratching when carefully done. In a few instances I have seen very bad arms result from this method. The effects produced by revaccination are not, generally speaking, the same as those which exhibit themselves after primary vaccination. As far as I can see myself the effect of the vaccine manifests itself in three different ways:

1. There may be a perfect vesicle passing through all the different stages, showing that the protective effects of the first vaccination have entirely passed away.

2. There may be a scab formed, but no distinct vesicle, showing that the protective effects of the first vaccination only partially remain.

3. There may be only slight redness produced, showing that the protective effects of the first vaccination remain perfect, or nearly so.

In all cases, I think, where there is not a perfect vesicle, revaccination should be tried again, in order that the operation may not hereafter from carelessness fall into disrepute.

In order that the general public may learn the benefits resulting from vaccination and revaccination, all possible information should be afforded them on the subject, and medical men should be particularly anxious not to let any discredit fall upon the operation from the want of proper care. Once let the public be fully convinced of the fact that they cannot possibly receive harm from the inoculation of vaccine matter, and we may have the satisfaction of seeing small-pox in time banished from our shores.—*Edinburgh Medical Journal*.

On the Treatment of Asthma. By GEORGE GASKOIN, Esq., Surgeon to the British Hospital for Diseases of the Skin.

In the summer of 1870, I was summoned to a lady suffering from an acute attack of asthma. For several nights she had been restricted to the sitting posture, bent over a table, with the forehead resting on her hands. The distress was very great indeed. She was subject to frequent attacks of the kind, complicated to a very moderate extent with catarrh and bronchitic exudation. Her physician, a gentleman who holds high professional rank, was out of town. Nothing had been omitted in the treatment, which of late was simply palliative. She was recognized as constitutionally asthmatic, and little hope was entertained of permanent amendment. The asthma first occurred on the subsidence of nervous symptoms a few years previous. It had not, as far as I am aware, any marked organic basis. There was observable on the legs an eczematous eruption. Under these circumstances, I directed that the chloroform liniment of the *British Pharmacopœia* should be rubbed briskly into the chest for an hour's space, if possible; and this was done daily by a very efficient attendant, who had sufficient intelligence to comprehend and carry out the treatment. Very early much relief was experienced. On the return of her physician to town at the end of three days, she was already so very much changed for the better that he directed the treatment to be continued. From that time it consisted in the daily repetition of the rubbing process for a month or nearly so, without aid from medicine, and with little restriction as to diet. Beyond the information I received that she was daily improving, I had really little or nothing to do with her professionally, after one or two visits. Under the hands of her attendant, she speedily got rid of the asthma. The patient went out of town in the autumn, and enjoyed perfect health and spirits. She took much walking exercise, with exposure in the cold of the ensuing winter; and, what is very singular, two years have since elapsed with no return of the asthma.

I shall now make a few observations on this method of treatment. For some years, in Paris, asthmatics have been in the habit of resorting to a rubber in the Boulevard Saint Michel, a certain Widow Pau, who pursues there very much the method which I have laid down, only that her nostrum is a secret. She is resorted to by a few wealthy people from this country, and has honorable mention in some of our West End clubs. At the end of the treatment, her patients are presented with a little book or *brochure* containing her successes, which may be said to be fairly written for a book of its class. The cure is apt to disappoint for a few days; but generally great benefit will be found in a fortnight, or even in less time. There is a hint that it is best suited to cases with catarrhal and bronchitic complication. The instance which I have here brought forward seems exactly to correspond with those which are boasted of and detailed historically by Madame Pau.

Before giving directions as to how this treatment should be carried out, I will speak as to the *rationale*. Counter-irritation, especially by blister, issue, and moxa, are of such well-established repute in the treatment of asthma, that I need not dwell on them; but, besides this, a jolting vehicle, anything that leads to displacement of the air stagnant in the vesicles, is proved to give relief in many instances. I should advise, then, that the frictions should be made with such roughness as the case admits. Slight blows with the palm of the hand or the end of a towel on the ribs, are quite allowable; and the friction should be extended to the front of the neck at the lower part, where the vagi enter the chest. I do not think that the composition of the liniment need trouble us, provided it be warm and work easily. Anything like Roche's embrocation would answer very well.

I am not without some experience of asthma, and I am persuaded that the present method will be found a valuable addition to our therapeutic means. If proved not to be novel, it must be conceded that it has fallen into utter neglect.—*British Medical Journal*, March, 1872.

Diseases of the Muscular Walls of the Heart. Lectures delivered at the Royal College of Physicians, March, 1872, by RICHARD QUAIN, M.D., F.R.S., Physician to the Hospital for the Diseases of the Chest, Brompton.

In the attention which has been given to diseases of the valves of the heart, the affections of its walls have too much been lost sight of. True, their importance has not escaped the attention of the principal writers on the subject. Laennec, Stokes, Gairdner,

Chambers, Peacock, have all referred to the importance of studying the condition of the walls of the heart; but such prominence is still given to the subject of valvular disease that many persons have come to regard the term as synonymous with all heart disease, while there are not a few who regard dilatation and hypertrophy as mere complications of diseases of the valves. No doubt disease of the valves is a very serious element in the production of heart disease; it more or less inevitably leads to dilatation or dilated hypertrophy. But many other causes are equally efficient in producing those conditions. The real value of clinical study of the valvular diseases of the heart, is that a knowledge of their existence leads us to a recognition of the immediate cause of the disease which may be present in the heart's walls, and also that we may be able to measure the progress of the one by the nature and progress of the other.

Clinical study of the diseases of the walls of the heart teaches us that (1) the really serious effects of heart disease result from hypertrophy, or from dilatation, or from a combination of the two; (2) valvular diseases may exist up to the close of a long life without rendering the subject of them conscious of their presence; (3) it is possible to refer to cases in which, valve disease having existed without causing any inconvenience, something occurs which damages the condition of the muscular walls, and serious disturbance is the result; (4) there are cases in which some additional mischief occurs to valve disease already existing, and this mischief is remedied by the supervention of further compensatory hypertrophy; (5) the converse of the last class is seen in cases of valve disease in which the heart walls fail and the disease progresses; (6) cases occur in which valvular disease—i. e., incompetency—is caused by dilatation of the heart. These propositions show the primary importance which belongs to the study of diseases of the walls of the heart. As these walls are strong and efficient, or as they are weak, dilated, and inefficient, so will be the phenomena of disease with which we have to deal.

Enlargement of the heart is the most important of its pathological states, both from the frequency of its occurrence, and from the marked influence which it has over many other morbid conditions of the body. It is rarely the result of a single process, being usually due to a combination of hypertrophy of the principal elements which compose the cardiac walls, with dilatation of its cavities, the result of internal pressure.

The subject of hypertrophy of the heart seems to have been first noticed by Nicholas Massa, in 1534, who speaks of a heart "greatly enlarged." Our own Harvey, in 1601, described a heart very much enlarged occurring in a man "as the result of choler." Mayow, in 1681, describes a case in which, the left auriculo-ventri-

cular orifice being obstructed, hypertrophy of both ventricles had occurred; and it would be difficult to give a truer or clearer description of our knowledge on the subject at the present day than that contained in his account. Vesalius, Senac, Corvisart, and Bertin, all described hypertrophy more or less accurately, but they gave it a subordinate place, regarding dilatation as the more important disease. Bertin first described hypertrophy fully, separating it from dilatation, and he formed a classification which is almost that which we use at the present day.

Enlargement of the walls of the heart may depend, first, on an increase in the muscular fibres; secondly, on an increase in the connective tissue; and thirdly, on an increase of fat.

The first form, *simple muscular hypertrophy*, is familiar enough in its character and appearances. The determination of the exact nature of the muscular change, whether by increased size or increased number of the fibres, or by both, is attended with so many difficulties that the question is still unsettled.

The second form, *connective tissue hypertrophy*, is one which has not yet received distinct and definite recognition. The disease first came under Dr. Quain's notice nearly twenty years ago, in a case recorded in the *Pathological Transactions*, vol. i. A similar change has been briefly alluded to by Corvisart, Laennec, Dr. Williams, Rokitsky, Sir W. Jenner, and Dr. Ormerod. Under the microscope a heart affected with this disease presents not only the usually limited amount of intermuscular fibrillar tissue and connective tissue cells, but a decided hyperplasia of this in the shape of connective tissue in all stages of development, from the globular to the spindle-shaped cell, and from this again to the bundle of fibrillæ. The muscular fibres are seen to be surrounded by this connective tissue, and more or less compressed by it. In many of the fibres granular and slightly fatty degeneration may be observed. In other parts of the heart the muscular fibres may be normal in appearance. The thickness of the walls is increased, as in simple hypertrophy, but their density and consistence is strikingly increased to a firm, tough, leathery character. When divided, the cut edges do not collapse, but remain stiffly prominent. In color, such a heart may vary from pale buff to deep purple, according to the amount of connective tissue and of blood present. But the change often occurs with less marked characters, and the hearts thus affected may not differ greatly from those hypertrophied by simple addition to the muscular fibres. This is doubtless the reason why the disease has been so often overlooked. The origin of this change is unquestionably to be sought for in a chronic interstitial inflammation or hyperplasia.

The third form, *hypertrophy of fat*, has usually been confounded with fatty degeneration. Where this change is moderate in amount, simple striæ of yellow tissue may be observed to lie

amongst the fibres, and small masses of fat may appear beneath the endocardium. In the more extreme cases the muscular fibres may be almost concealed, and the columnæ carneæ may seem to arise from a mass of fat, as they are described to do by Laennec and Bizot. Under the microscope the fat is contained in cells as in other parts of the body. It is most abundant towards the outer surface. There, few muscular fibres can be seen, and the wide intervals between them are occupied by the fat-cells. Proceeding inwards, the fibres are more evident and the fat-cells fewer; and, finally, beneath the endocardium we have only a few cells lying here and there between the fibres. Even though overwhelmed with fat the fibres may still retain their organization; but, in all cases, their course and direction is more or less modified and distorted.

Dilatation of the heart. Its character and ordinary mode of origin are well known. It occurs in especial relation to degenerative processes in the cardiac wall, and particularly when occurring in the recently developed muscular fibre of commencing hypertrophy. Both processes continuing, we get those enormous examples of dilated hypertrophy sometimes seen, in some of which the heart reaches the weight of 46 ounces.

The causes of enlargement of the heart may be classified thus: (1) Agencies acting through the nervous system; (2) Agencies acting mechanically; (3) Agencies originating in disordered conditions of its nutritive functions.

Concerning the first of these causes Corvisart called attention to the increased frequency with which organic affections of the heart were met with during the French Revolution. In the overstrained excitement of our own more peaceful age we may recognize a cause equally efficient.

Statistics furnished by Dr. Farr clearly show two things: first, as an absolute fact, that during the last twenty years the total of deaths of males at all ages from heart disease have been more than doubled. Corrected for increase of population, the tables show that per 1,000 living between 1851 and 1855, .725 died from this cause, as compared with 1.085 from 1866 to 1870. Secondly, that during the years 1851—1870 the percentage of deaths from heart disease has remained quite unchanged in males under twenty, showing that the difference cannot be due to improved diagnosis of the disease, whereas the percentage in each succeeding period of twenty-five years has risen half as much again. Nevertheless, the same statistics show that there is almost no rise in the percentage of deaths of females from cardiac disease during the twenty-five years of life from twenty to forty-five.

The mechanical causes of hypertrophy are such as interfere with the free circulation of the blood. Severe muscular exertion,

often repeated, is a frequent cause. The influence on the heart is, for the time, very distressing, and it may lead to permanent injury. Athletic sports in excess often do harm in the same way. The cardiac hypertrophy in Master Magrath was more likely the result than the cause of his sustained muscular efforts. No doubt to the influence of physical labor is due the far greater liability of men than women to cardiac hypertrophy. According to Dr. Vanderbyl, out of 40 cases 34 were in males, with an average weight 22½ oz., whilst only 6 were in females, with an average weight of 17½ oz.

A more frequently recognized class of mechanical causes consists of those occurring in the direct course of the circulation, in the heart itself, or in the vessels—e. g., contraction of the orifices of the heart, atheroma in the great vessels, constriction of the aorta, the distal obstruction in Bright's disease, and pregnancy. The influence of obstruction in the minute vessels in causing hypertrophy was pointed out by Mr. James, of Exeter, so far back as 1817, and afterwards more fully enunciated by Dr. Bright in his paper on albuminuria, published in 1836. Both he, and subsequently Dr. Snow, referred the increased action to a difficulty in sending the altered blood through the minute parts of the circulation; and Dr. Johnson has shown how this difficulty is produced by the increased contraction of the muscular walls of the small arteries, and subsequent hypertrophy. Traube imagined that the obstruction in the kidneys would explain the phenomenon.

The influence of pregnancy in causing hypertrophy has attracted less attention than it deserves. In 1826 Lacher announced, as the result of an examination of 130 healthy women who died in childbirth, that the heart was enlarged in pregnancy, the hypertrophy being confined to the left ventricle, whose walls were increased from a quarter to a third. The occurrence of the hypertrophy has since been amply confirmed. It is due, no doubt, to the necessity for an increased supply of blood to the womb, as well as to the mechanical resistance offered by the pressure of the gravid uterus upon the great vessels of the abdomen. Some considered that the albuminuria which occurs in pregnancy contributes in some measure to the cardiac enlargement, while most think with Traube that the latter exercises a causative influence upon the albuminuria.

Enlargement of the heart from the third group of causes—disordered conditions of the nutritive functions—is more frequently of a passive and degenerative kind. In chlorosis and anæmia the heart labors rapidly but ineffectually to send its diluted contents for the nourishment, imperfect though it be, of the system. In such cases we see dilatation of the degenerated walls. In those again who live well and take little exercise, the heart becomes large, flabby, and infiltrated with fat. In Bright's disease some of the

hypertrophy may be due to excited action caused immediately by the blood-state.

Of nutritive influences acting locally, one of the most interesting is the influence of pericarditis and adhesion. There has been much discussion concerning the state of the heart under these circumstances, some asserting that it is enlarged, others that it is diminished in size. As a general rule it is enlarged, but the enlargement is usually due to hypertrophy of the connective tissue. Such was the case in a heart described by Dr. Wilks in the "Pathological Transactions," vol. viii, in which one-half of the true muscular substance was replaced by fibrous tissue. Where, in these cases, the size is diminished, it is probably due to infiltration by a denser fibroid tissue—a cirrhotic process analogous to cirrhosis elsewhere.

Passing over the well-known causes of dilatation, there occur, lastly, cases of cardiac enlargement which cannot be referred to any one cause. Cases have been recorded by several observers. In some the dimensions of the heart have been enormous. It seems probable that such enlargement, without evident cause, may be due to fibroid infiltration. This view has been confirmed by an examination which has been made of one of these large hearts weighing 40½ oz., which has been for the last thirty years in the museum of St. George's Hospital. Under the microscope it was found to depend partly on hypertrophy of the muscular fibre, but also in great measure on a large increase in the amount of connective tissue.

The *local* effects of enlargement of the heart are sufficiently familiar. In considering its *systemic* effects it is well to bear in mind the three varieties of hypertrophy described in a previous lecture. In *simple muscular* hypertrophy, developed to overcome an obstacle, so long as the power is merely spent in overcoming the resistance, and is sufficient for that purpose, all goes well. But in some cases it is expended in other and in injurious directions. In distal obstruction, for instance, the intervening vessels are exposed to all the increased pressure from the powerfully acting ventricle, and various congestions result, controllable to some but only a limited extent by the vaso-motor nerves: if the vessels be sound, transudation may occur, as in dropsy; if rotten, they may give way, as seen in many cases of cerebral hemorrhage. Moreover, in the heart itself the increased power may be misdirected. In mitral regurgitation, the ventricular hypertrophy, unless counteracted by that in the auricle, may tend to increase the mischief in the lungs. In *connective tissue* hypertrophy the freedom of contraction of the fibres is restrained by the surrounding new tissue, and such a heart is dynamically weak. It would seem, so far as present observation goes, less likely to dilate than the simply degenerated heart. In

the *fatty* hypertrophy there is a languid and feeble circulation, a sense of uneasiness and oppression at the chest, and embarrassed breathing, especially on an effort.

Dilatation of the heart, if confined to the left ventricle, causes passive congestion with all its results. When the right side is affected, these are conspicuously seen in the systemic circulation. Interference with the functions of nearly all the organs of the body, and general dropsy, result. Usually these conditions exist in conjunction—dilatation with some degree or form of hypertrophy; and the clinical physician has to unravel as best he can the tangled web before him.

Certain special effects of enlargement of the heart deserve attention. Its connection with cerebral hemorrhage has been a source of much difference of opinion among pathologists; some asserting, others denying, a causative relation. Dr. Burrows has shown a very close connection between apoplexy and disease of the heart, having ascertained their coexistence in three-fifths of the cases he investigated. Sir Thomas Watson doubts the influence of hypertrophy of the left ventricle in causing cerebral hemorrhage; while Eulenberg believes that it has such an influence only when it is dependent on peripheral disturbance of the circulation. In 65 autopsies in death by apoplexy, the accounts of which the lecturer has collected, the heart was increased in size without disease in 31, increased in size with valve disease in 12, and in 22 it was normal in size. Of the 31 cases without valve disease, the cerebral vessels were diseased in 17, and only in 4 of the 12 cases with valve disease. In the 22 in which the heart was normal, the vessels were diseased in 14. Moreover, examining the particular chambers affected, we find that in the 31 cases without valve disease the left ventricle was hypertrophied 29 times; in the 12 cases with valve disease it was hypertrophied 10 times. Out of the 65 cases, the left ventricle was hypertrophied in all 39 times. In the whole number of cases the kidneys were granular and contracted in 26, in 21 of which the left ventricle was hypertrophied. Hence we may conclude that in a given number of cases of apoplexy the enlarged heart is more frequently present than diseased cerebral vessels, nearly in the proportion of 4 to 3. Further, that in a given number of cases of apoplexy in which the heart is enlarged, the cerebral vessels are found as frequently healthy as diseased. Thirdly, that apoplexy is more frequently found with hypertrophy of the heart without than with valve disease in the proportion of 5 to 3. Lastly, that when the heart is enlarged, and the vessels of the brain diseased, cerebral apoplexy is found more frequently without than with valve disease in the proportion of 3 to 2.

The relation of heart disease to phthisis. First, as regards the size of the heart. In examining the records of 171 cases, it was

enlarged in 25.66 per cent. of the male cases, and in only 7 per cent. of the female. In the males it was small in 53 per cent.; in females it was small in 67 per cent. In males it was normal in 21 per cent.; in females in 26 per cent. Some very small hearts were met with; in a girl, aged eight, the heart weighed only 2 oz.; in another, aged fourteen, only 1 oz. 14 drachms.

A second point was the duration of life in cases where the heart was hypertrophied. In 215 cases of phthisis used as a standard of comparison, in which no heart disease existed; 41.4 per cent. died under one year, 26 per cent. under two years, 19.5 per cent. under four years; 13 per cent. lived over four years. In 77 cases in which the heart was hypertrophied and dilated, 26 per cent. died under one year, 50.6 per cent. under two years, 6.5 under four years; 16.8 lived over four years. Thus we see that hypertrophy of the heart tends to prolong life in phthisis, and the result is most marked in the first and third years.

A third point was the relation of heart disease to hæmoptysis. In 80 cases in which the heart was hypertrophied (in 30 of which valve disease also existed), hæmoptysis occurred in 47 cases, or in 57.3 per cent. In 1381 cases of phthisis without heart disease, hæmoptysis occurred in 870, or in 63 per cent. Thus hypertrophy appears to have no influence in promoting hæmoptysis.

The relation of heart disease to renal disease. In 785 cases of heart disease, collected by Dr. Chambers, there was renal disease in 34 per cent. Hence a person with heart disease would be half as likely to have Bright's disease as not. Traube asserts that the renal congestion rarely ends in true Bright's disease, but the lecturer adheres to the opinion which he expressed twenty years ago—that the organic alterations very commonly result, both tubular and intertubular.

Diagnosis of the nature of the cardiac enlargement. The characters of the simple muscular hypertrophy are well known. Those of the second variety, the connective-tissue hypertrophy, are a strong heaving impulse, with a dull and obscure first sound. The signs are those of increased strength, but the increased strength is spent in great measure in overcoming the restricting action of the fibrous tissue which surrounds the muscular fibres. Hence there is evidence of circulatory weakness in the system generally. Such symptoms were present in the case of Dr. Hyde Salter, before alluded to. The fatty hypertrophy may be distinguished from that with which it is most likely to be confounded, as Dr. Shapter has pointed out, by the sharpness of the sounds, and by the general state of the patient.

Dilatation, the other great factor in producing cardiac enlargement, is evidenced by a peculiar square shape of the cardiac dull-

ness, and short, clear and sharp cardiac sounds, accompanied, when the auriculo-ventricular openings have become dilated, with a systolic murmur, in the absence of any valve disease. By the presence, therefore, of concomitant dilatation, healthy muscular hypertrophy becomes considerably modified. But it is especially with degenerated hypertrophy that dilatation is combined. Hence the signs of the two conditions, dilatation and weakness, have come to be confounded, and the local phenomena of each, as well as their general effects, really due to the presence of an increased amount of connective tissue, or of fat, or of degeneration in the walls of the heart, have been attributed to the existence of dilatation alone. Hence the paramount importance of determining the textural state of the cardiac walls. In doing this, the sphygmograph and cardiograph both render assistance; the former, as Dr. Sanderson has shown, by indicating the arterial tension and the efficiency of the heart to do its work, while the latter indicates with great accuracy the duration of the systolic effort in the manner described by Mr. Garrod.

The treatment of enlargement of the heart has been much ruled—as so many other things in life, and it may even be said in death, have been—by fashion. In the time of Valsalva and Albertini, enlarged hearts were treated by systems so depleting and lowering that it was a question whether atrophy was not a frequent result of the treatment for hypertrophy. Now, stimulants and tonics are the favorite remedies. It is under such circumstances that we hear of the “uncertainty of remedies,” of want of faith in physic, or of the still more hopeless doctrine that there are few or no diseases that can be cured. The word “cure” is a relative term. If it is intended to mean that an organ or texture destroyed by disease can be restored to its former condition, the list of incurable diseases may, it is true, be made a long one. But if, on the other hand, it is meant that the progress of an organic disease can in many instances be arrested, and the patient’s health so far restored that the disease ceases to inconvenience him, then the list of curable diseases is each day becoming lengthened. Are phthisis and heart disease the incurable diseases they were once? Formerly they were not recognized till they had assumed an almost certainly fatal character. Now, detected and treated in an early stage, scores of cases do well, whether we owe the result to nature or not. If our knowledge were greater, both of the nature of pathological processes and of the action of medicines, our faith in physic would be stronger, because better founded. For example, if either the lowering or tonic treatment be applied indiscriminately to each of the three forms of cardiac hypertrophy, the ambiguous results need not surprise us. We may anticipate, as we understand them better, and learn the action of medicines upon them, that our results will be far more satisfactory.

In simple muscular hypertrophy, the physician has to discover its causes, and remove them as far as he can, and secure to the laboring organ all possible conditions of repose. We must try to subdue abnormally excited action, and, on the other hand, prevent the decay and degeneration which so often follow in the course of excessive development. In the action of drugs which have an influence in reducing the force of the heart—as aconite—lies a very promising field of investigation. In connective-tissue hypertrophy, if we could diagnose it in its early stage, remedies likely to subdue the inflammatory state in which it takes its origin might have a beneficial influence. In the third form—fatty hypertrophy—our treatment must be such as is calculated generally to prevent the formation of fat. In dilatation and dilated hypertrophy, the different conditions that are present demand corresponding measures for their relief. The dilating pressure would evidently be most immediately relieved by withdrawal of some of the blood, and this sometimes in urgent cases is very beneficial; but more frequently we attain the end by indirect measures—by purgatives and stimulation of the excretory organs, which, at the same time, diminish its volume and purify the blood. The next object must be to secure, if possible, compensatory hypertrophy by improving the nutrition generally, and especially by influencing the nutrition of the contractile substance of the heart. Two drugs especially have great power for this purpose, iron and digitalis. To prescribe the former before local congestions have been cleared away, is worse than useless; but after the blood stasis has been relieved, steel is well borne, and its effects are most valuable. The influence of digitalis has been most ably studied by many investigators, and especially of late by Drs. Brunton and Fothergill. There seems to be no doubt that it is a stimulant to the nervous ganglia of the heart, and neither a sedative to those nor a paralyzer of the vagus, as was once believed. Its administration is at once followed by better and more complete ventricular contraction. Dilatation is lessened, and with it all the local disturbances. The heart is enabled to supply all the organs with their due amount of blood, and there is a general restoration of healthy nutrition. The treatment, however, must be always secondary to the application of the eliminating agencies.

Strangulated Hernia.

In a lecture on the above-named subject, delivered at St. Bartholomew's Hospital, and published in the *British Medical Journal*, Sir James Paget remarked that in hospital and private practice together he had operated an hundred times for strangu-

lated hernia, but that to obtain conclusions of real value it would need a tabulation of at least a thousand cases.

Generally speaking, in a case of hernia with signs of strangulation present, where reduction by ordinary means cannot be accomplished, an operation should at once be performed, in some cases, although the hernia is irreducible, the symptoms of strangulation are slight, obscure, or incomplete. It is an easy rule for all these cases that you should operate when strangulation is suspected; this rule you must avoid, and learn the hard one to discriminate the cases that require operation.

The irreducibility of the hernia is a fallacious sign of strangulation, and the presence of the other local signs even in a marked degree, is not decisive of strangulation, and is not sufficient to prove the need of operating when the remoter signs are not present. The local characters usually present in a strangulated hernia, and sometimes the remoter signs, may be imitated in an inflamed hernia, which is not strangulated. Generally, in the inflamed hernia, without strangulation, the local signs precede and greatly predominate over the remoter and general signs; while, in a hernia which is inflamed after becoming strangulated, the remoter and general signs will still predominate over the local, and the history will tell that they preceded. If these means of discrimination fail, you must operate if you cannot easily reduce the hernia; the risk of operating is small in comparison with that of waiting, for an inflamed and irreducible hernia may at any time become strangulated.

A hernia that has come down quickly, and the more it exceeds its usual size, the less is the probability of its being reduced without operation.

Again, the harder, more tense and painful a hernia is, the less the chance of reduction without an operation.

Again, if the remote and general signs of hernia are present and the hernia cannot be reduced, you must operate, or, if there be a swelling which may be a hernia, though it seem not likely to be a strangulated hernia, the operation must be performed at the seat of swelling.

If a patient have two herniæ that are irreducible and signs of strangulation, and you cannot tell which is strangulated, you must operate on both.

One or more actions of the bowels after symptoms of strangulation have set in, are of no weight against the propriety of operating; even frequent and regular action is not an absolute prohibition, as strangulation may involve only the omentum or only a part of the circumference of a portion of the intestine.

As a rule, while the bowels act you should not operate unless all the other signs of strangulation are well marked.

The sign we should most rely on as commanding the operation

is vomiting. The rule is safe that recent irreducibility and vomiting are enough to justify the operation, even though there be no other signs of strangulation present. While there are notable kinds of vomiting characteristic of strangulated hernia, we should not be misguided by waiting for any particular kind. Any kind of vomiting, if it be repeated, is enough to justify operation in a hernia recently become irreducible.

Cessation of vomiting in the extreme condition of strangulated hernia is a token of evil rather than of good, if general improvement do not coincide with it. The pulse is 80 or 90 in a majority of ordinary cases in the early stages, and becomes more rapid as the symptoms of strangulation become more marked; the respirations usually are in due proportion to the pulse.

For the reduction of strangulated hernia without operation, Sir James Paget laid down the following general rules:

In cases, for instance, when the patient vomits faecal matter and has peritonitis, or is in collapse, with a small rapid pulse, hiccough, or other such extreme signs, there should be no attempt at reduction without operation.

When the coverings of the hernia are so inflamed as to make it probable that sloughing or suppuration has taken place beneath them, reduction should not be attempted without operation; and even when less inflamed, none but slight and brief efforts at reduction should be made.

The longer the signs of strangulation have existed the shorter should be the efforts at reduction, but the intensity of pain in recent or acute hernia should not deter one from making the attempt.

In a hernia which has been habitually irreducible and becomes strangulated, you should operate at once. It is a safe rule of practice that, after a warm bath and a few hours rest in bed, a single attempt at reduction should be made; should this fail, chloroform or ether should be given, and then in some cases, but not in all, a second attempt made; this failing, the operation should be performed while the patient is still insensible.

The hot bath is useful in all cases that are not bad, unless in old and feeble persons; the patient should be simply soothed or relaxed in the bath, then wrapped in warm blankets, put into bed lying on his side or his back, with his knees drawn up, or with his pelvis a little raised, and then after an hour or two of complete rest the reduction attempted. The employment of rest and the bath is helped by opium when the hernia is painful. In the old, and others who may have had inactive bowels long before the strangulation, an enema of a large quantity of liquid should be used. Purgatives should not be used if there are marked symptoms of strangulation.

After the warm bath and rest have been tried, you may give chloroform or some other anæsthetic. In making the attempt at

reduction you must be gentle and self-restraining, mindful of the delicacy of some of the structures you are handling, and that you may do them much more harm than would come of the operation which you are trying to arrest. These cautions are the more necessary because when the patient is under chloroform, you have nothing but your own sense and senses to tell you how far you may go without doing harm.

Chloroform is most useful in the herniæ of which the difficulty of reduction is chiefly due to muscular resistance, in the recent, or in the recently much enlarged; in the inguinal more than in the femoral; and in these more than in the umbilical; in the painful more than in the painless. In herniæ that have only recently come down, and are intensely painful, it is right to use chloroform or ether without waiting for the influence of the warm bath, but more commonly, if there be danger in waiting three or four hours, it is because strangulation is so far advanced that the operation ought to be performed without any previous attempts at reduction.

After the warm bath, rest and chloroform have been tried, and the reduction is not accomplished and strangulation exists, you should operate while the patient is still under the influence of chloroform; but if strangulation is not present you may wait, but must watch impatiently, for the hernia is likely soon to become strangulated. While waiting, ice or warm dressings, enemata, aperients or opiates may be used. Tobacco and curious postures, and shaking the legs up and the head down, and the cupping glasses, are more dangerous than the operation which they are intended to avert.

For doubtful or partial reduction there is one practical rule—operate if the symptoms of strangulation are not relieved. In cases in which reduction seems complete but the symptoms of strangulation are still present, operate, if you can feel a lump at or near the hernial ring.

Old age and disease may add to the risk of an operation for strangulated hernia, but they must be accepted. A patient must not be allowed to die with a strangulated hernia, if by any means whatever the strangulation can be relieved, and you must not be averted from the operation by the number of deaths that follow it.

The deaths after the operation may be 50 per cent., but the deaths due to the operation are not more than 2 or 3 per cent.

Faber's Talking Machine. By RALPH M. TOWNSEND, M.D.

A machine that utters the articulate sounds of the human voice has lately been exhibited in this city, the initial exhibitions being given at the Jefferson Medical College and the University

of Pennsylvania respectively. On both of these occasions an interesting accompanying lecture on "The Organs of Voice and the Mechanism of Speech," was delivered by J. Solis Cohen, M.D.

Joseph Faber (uncle of the present exhibitor of the apparatus), a former Professor of Mathematics in Vienna, constructed this machine as an exact copy, so far as was possible, of the human vocal apparatus. It was exhibited here thirty years ago, since which time the present Prof. Faber has remodeled and improved it. Its mechanism is intricate, resembling, in its labyrinth of springs, strings, wires, and tubing, a loom, and in the complexity of its workings, the Alden type-setter.

The machine proper is mounted upon a table and operated by a key-board and levers, like a piano. Under the table is a treadle that works the bellows, supplying air to the larynx. The latter is formed of india-rubber, with a movable glottis of thin lamellæ of ivory to give the necessary tension. The upper jaw is wooden and stationary, having a lip of leather. The under jaw, which is movable, is made of gutta-percha, as is the roof of the mouth. The tongue is made of rubber, is flexible and movable, and can be pressed either against the palate or back into the throat. As the mouth is unprovided with teeth, a narrow metallic band is made to fall from over the upper lip and close the fissure of the mouth whenever the dental sounds are required. There is no soft palate. The nasal opening which permits the production of the sounds of *m* and *n* is formed by a tube proceeding from the larynx, beyond the vocal cords, and when the lips are closed, as for *b*. In the same way the *n* is made by the *d*. A little shuttle-wheel is so contrived as to be dropped into the current of air proceeding to the glottis, where its rapid revolution produces the sound *r*.

The lungs are represented by a pair of bellows. The instrument speaks phonetically, and therefore can utter words in any language. Fourteen sounds are used—viz., the vowels, *a*, *e*, *i*, *o*, *u*, and the consonants, *l*, *r*, *w*, *f*, *s*, *sh*, *b*, *d*, and *g*. In some instances remaining sounds are obtained by variously combining these, and in others they are modified by opening the glottis. The operator, Madame Faber, being a German and not speaking a word of English, the accent of the former tongue is readily distinguishable in the utterance of the machine. A mask, with a tubular nose, is slipped over the mouth when the machine speaks French, so as to give the nasal sound peculiar to the pronunciation of that language. The instrument is also able to speak in a very high or in a deeper tone; but all parts of a complete sentence must be intonated alike.

Such, in brief, are the appearance and construction of this mechanical marvel. Its utterances are distinct, although monotonous and sepulchral—totally devoid of modulation, emphasis, or

shade of expression. Its emotional impressions rank with those of Mrs. Shelly's "Frankenstein"—a literary monster that has haunted the pillows of two generations of nocturnal readers. It affects a timid individual like a gibbet and skeleton creaking and rattling in the night wind; and one does not marvel at the practical deductions of a Huxley or a Darwin after hearing it drawl out, "I—can—talk—as—well—as—anybody—buth—I'm—a—ma—sheen."*

As a fruit, however, of man's patience and ingenuity—as an apparatus illustrative of the workings of the vocal organs—and, finally, as showing the infinite superiority of God's handiwork over man's most elaborate imitations—in all of these this machine stands forth in pleasantly instructive lights, and therefore has its lessons that cannot be too well studied.

In his lecture, Dr. Cohen gave a short sketch of the history of these talking machines, an abstract of which will not prove uninteresting:

"Although attempts at the artificial production of speech had been long made, the first partial success seems to have dated from 1779, in which year the Imperial Academy of Sciences at St. Petersburg proposed, as the subject of one of their annual prizes, an inquiry into the nature of the (Continental) vowel-sounds—*a, e, i, o, and u*—with the construction of an instrument imitating them artificially. This prize was awarded to one Kratzenstein, who showed that the vowel-sounds could be distinctly produced by blowing through a reed in the lower ends of pipes of certain formation—one for each vowel.

"About the same time, Wolfgang von Kempelen, of Automaton Chess-Player notoriety, attempted the construction of a talking machine, in which he was moderately successful. The vowel-sounds were produced by adapting a reed to the lower portion of a funnel-shaped tube, the sounds of which were modified by inserting the fist into the mouth of the funnel. He afterwards constructed an oval-shaped box which opened on hinges so as to represent the action of a jaw. The tube containing the reed entered this box, and by opening and closing the jaws he produced the sounds *a, o, u*, in a satisfactory manner; *e* was imperfect, and he was unable to produce the sound *i*. (These are the Continental vowel-sounds.)

"Subsequently, he was enabled to obtain from different jaws the sounds of the consonants *p, m, l*, and, by means of combining these, he was enabled to deceive the ear by an imitation of most of the other consonant sounds; and, finally, he completed an arrangement with only one mouth and one glottis, the mouth consisting of a funnel-shaped piece of india-rubber, the sides of

* In support of Darwin's theories the machine might add, but Dr. Darwin—
theths—I may—if I behave myselthf—become—a man.—ED.

which were compressed by the fingers, so as to represent the lips in the formation of *b*, *p*, *m*, and *v*. In the tube leading from the wind-chest into this mouth were two tin tubes, capable of being opened by compressing a button at their free extremity, and thus representing the nostrils. When both of these were open, and the mouth closed, he produced the sound *m*, and when only one of them was open, he produced an *n*. Three valves were upon the wind-chest, two of which when open produced the sounds *s* and *sh*, respectively, made by little pipes; and the third valve when opened permitted the vibration of a separate reed which made a sound somewhat resembling the roll of the *r*. The whole apparatus was enclosed in a box about three feet in length and rectangular in form. It was placed upon a table, and covered with a cloth, under which the inventor placed his hands while operating the machine. He was able to produce a great number of words and sentences—among others, *papa*, *mamma*, *lama*, *aura*, *opera*, *astronomy*, *Constantinople*, *exploitation*, *vous etes mon ami*, *je vous aime de tout mon cœur*, *venez avec moi a Paris*, *Leopoldus secundus*, *Romanorum imperator semper Augustus*, etc.

"Mr. Willis, of Cambridge, repeated the experiments of Kempelen, using a shallower funnel, and, instead of introducing his hand to modify the sounds, succeeded in producing the whole series of vowel-sounds by sliding a flat board more or less over the top of the funnel. He then adapted tubes to the reed, and varied the length of the tube by telescopic slides. When the tube was shorter than that of a stopped pipe in unison with the reed, he produced an *i*, and by increasing the length of the tube the sound changed in succession to *e*, *a*, *o*, and *u*. When the tube was lengthened so far as to be half as long again as the length of a stopped pipe, in unison with the reed, the vowels again were sounded, but in a reversed order, and then again in direct order when the length of the tube was equal to twice that of a stopped pipe in unison with the reed."

After this came the original invention of Professor Faber, which, with its later modifications, I have above described.—*Medical Times*.

Impotency.

Prof. D. Hayes Agnew, of Philadelphia, (*Medical and Surgical Reporter*), in a clinical lecture on impotency, after stating that the treatment must be largely moral, and urging the abandonment of onanism or excessive venery, says that there is no better internal treatment than phosphorus and strychnia—1-50 grain of the former, and 1-30 of the latter—made into a pill, and administered three times daily.—*Clinic*.

Editors' Book Table.

[NOTE.—All works reviewed in the columns of the CHICAGO MEDICAL JOURNAL may be found in the extensive stock of W. B. KEEN, COOKE & CO., whose catalogue of Medical Books will be sent to any address upon request.]

BOOKS RECEIVED.

Lectures on the Principles and Practice of Physic. Delivered at King's College, London, by Sir THOMAS WATSON, Bart., M.D., F.R.S., etc., etc. A new American, from the fifth revised and enlarged English edition. Edited, with additions, and several hundred illustrations, by HENRY HARTSHORNE, M.D., Professor of Hygiene in the University of Pennsylvania. In two large and handsome 8vo. vols. Cloth, \$9.00; leather, \$11.00.

With the assistance of Professor George Johnson, his successor in the chair of Practice of Medicine in King's College, the author has thoroughly revised this work, and has sought to bring it on a level with the most advanced condition of the subject. As he himself remarks: "Considering the rapid advance of medical science during the last fourteen years, the present edition would be worthless, if it did not differ much from the last"—but in the extensive alterations and additions that have been introduced, the effort of the author has been to retain the lucid and colloquial style of the lecture-room, which has made the work so deservedly popular with all classes of the profession. Notwithstanding these changes, there are some subjects on which the American reader might reasonably expect more detailed information than has been thought requisite in England, and these deficiencies the editor has endeavored to supply.

The large size to which the work has grown seems to render it necessary to print it in two volumes, in place of one, as in the last American edition. It is therefore presented in that shape, handsomely printed, at a very reasonable price, and it is hoped that it will fully maintain the position everywhere hitherto accorded to it, of the standard and classical representative of English practical medicine. (*Publisher's Notice*).

We are exceedingly gratified at the reception of this new edition of Watson, pre-eminently the prince of English authors, on "Practice." We who read the first edition as it came to us tardily and in fragments through the "Medical News and Library," shall never forget the great pleasure and profit we derived from its graphic delineations of disease, its vigorous style and splendid English, reminding the reader of the better days of the Republic of Letters. There was scarcely any nonsense in the whole book, and what little there was did not come from Dr. Watson himself. Maturity of years, extensive observation, profound research, and

yet continuous enthusiasm, have combined to give us in this latest edition a model of professional excellence in teaching, with rare beauty in the mode of communication. But this *classic* needs no eulogium of ours.

The selection of Prof. Hartshorne as the American editor, is to us peculiarly gratifying, and must ensure even larger popularity and more general sale to American readers. Every guarantee is thus afforded that in every part the book will be found up to the times. Will it do to repeat the remark we have seen somewhere: "No library can be considered complete without it"? Although the phrase may not savor of originality, it is, nevertheless, most emphatically true.

The Correct Principles of Treatment for Angular Curvature of the Spine. By BENJAMIN LEE, A.M., M.D. Philadelphia: J. B. Lippincott & Co. 1872.

Several years since, Dr. Lee published a little volume entitled "Contributions to the Diagnosis, Pathology and Treatment of Angular Curvature of the Spine," now out of print. The present essay is to a certain extent a new edition, omitting that which has now passed out of the pale of controversy, or was indirectly personal. It is a very useful monograph on an important subject.

PAMPHLETS.

Spectrum Analysis Discoveries: Showing its Application in Microscopical research, and to discoveries of the Physical Constitution and Movements of the Heavenly Bodies. From the Works of Schellen, Young, Roscoe, Lockyer, Huggins and others. Boston: Lee & Shepard. New York: Lee, Shepard & Dillingham. Price, 25 cts.

This is No. 4 of the series edited by Dana Estes, entitled "Half-Hour Recreations in Popular Science." Twelve Nos. are issued annually, at 25 cts. each, or \$2.50 a year. The present number is beautifully illustrated.

The New Silicon Steel. E. GULICK, Manager and Attorney, Rome, N. Y.

The Better Way; Or, Considerations upon the Natural System of Providing for the Treatment of the Insane. By ANDREW MCFARLAND, M.D., LL.D. Pp. 40.

An American Italy for Invalids:— A Dissertation showing the Advantages, Incidents, etc., of a Journey on the Plains, in the Rocky Mountains and Mexico, for the Cure of all Chronic Diseases. By R. E. FULLERTON, M.D. June, 1872. Vol. 1, No. 1, pp. 64. Mailed to any address by H. D. Chapin & Co., Booksellers, 50 East Harrison Street, Chicago. Price, 25 cts.

Items, News and Gossip.

Several St. Louis physicians commend in cerebro-spinal meningitis, counter-irritation, scarifying and cupping along the spine, free purgation by calomel and jalap, followed by large doses of quina. All members of the local society present concurred in this treatment; but it was remarked by one gentleman (Dr. Gill), that "he had never seen a case recover when the petechia was well marked." — The "thirst cure," which Dr. Watson commends in acute catarrh or "bad cold," is reported by Dr. Pimser, of Germany, as very favorable in result in pleurisy, very certain and rapid. The plan is to commence deprivation of all fluids immediately on cessation of the inflammatory stage. It is claimed that the exuded material is rapidly reabsorbed, the formation of fibrinous bands and false membrane prevented, and the lung completely relieved of compression.—M. Broca (*Lyon Medicale*), in the reduction of dislocations or fractures with displacement, writes that he secures relaxation of the muscles, without the use of anæsthetics, by compressing the principal artery supplying the limb. It being, at least, probable that in the majority of cases the resistance to replacement is not simply muscular, the importance and value of the discovery seems at present somewhat questionable. — Surgeon Wood (*London Lancet*), advises in tracheotomy a transverse rather than a vertical cut, as being easier kept open, especially when the patient, as he usually does, inclines to throw the head backward. With a sharp small-bladed knife he makes a single transverse incision across the lower part of the hollow depression

felt by the finger, just above the cricoid ring, through the skin and membrane at once, right into the windpipe. A tube is not generally necessary, but if used, should be modified to suit the opening from the one in ordinary use. — The Legislature of Kentucky has passed a bill subjecting habitual opium eaters to similar legal guardianship with drunkards and lunatics. — To render readily inflammable fabrics incombustible, a recent writer advises their immersion in a mixture of four parts of borax and three parts of sulphate of magnesia in from twenty to thirty parts of water. The solution is to be used immediately, or else the insoluble borate of magnesia is formed. For cheaper fabrics a solution of sulphate of ammonia and gypsum may be employed. The *Reporter* has the item. — Cundurango flickers once more, but this time rather as an anti-syphilitic than as an *anti-canceric*. Prof. ANDREWS publishes letters from Ecuador, that speak almost as highly of its uses as their predecessors did of Sarsaparilla. One of the tropical doctors offers to lay it down in New York at two dollars a pound. Poor Bliss & Keene have been asking *forty*. If it does not cure, the article is not genuine — (which remark we think we have seen in some newspaper advertisement). — Benzine internally administered, ten to twenty drop doses, is one of the latest notions for whooping cough. It may also be used with the atomizer. — W. W. Dawson, M.D., President of the Ohio Med. Soc., in his annual address, after recapitulating the triumphs of *American Medicine and Surgery*, makes this pertinent inquiry: "If our system of medical education be so defective, why this great excellence in the men who have been educated by it? It is unusual to see such fruit from a tree that is all unsound." We, also, pause for a reply. — Dr. Harshberger (*Reporter*), gives a case where inflammation of the tongue, mouth and throat, of a violent character, with severe constitutional symptoms, was rapidly relieved by local application of ice, small lumps being kept constantly in the mouth, and the neck surrounded by a towel wet in ice water. The treatment was suggested by Dr. Corson's ice-treatment in scarlatina, measles, diphtheria, etc. — The local application of a strong solution (85 per cent.) of carbolic acid, as an anæsthetic, is urged by Dr. Andrew H. Smith, (*N. Y. Medical Journal*). Under its application the cuticle speedily becomes whitened, shriveled and insensible, so that the contact

of the knife is unfelt. This may be taken advantage of in opening whitlows, felons, boils, etc. The Dr. also recommends it as a painless revulsive, and also inhaled in the form of spray for relieving irritation of the bronchial mucous membrane. — Dr. Todd (*Ind. Jour.*) prefers the powdered calabar bean to other preparations. In cerebro-spinal meningitis he commences with four grains of the powder, and gives three grains every hour after until the urgent distress of the back part of the head and neck is relieved. In his experience this is usually secured in from three to five hours. The drug was not pushed far enough to produce contraction of the pupil, though some depression was complained of. Subsequently the medicine was continued at such intervals as the case required. After ten days, more or less, bromide of ammonium was substituted. From our own observation and such reports as we have read, we doubt any relation between the bean, in any shape, and the disease.

Loot.

Clinical Thermometry.

Dr. Lucius D. Bulkley has presented a lengthy paper on this subject to the New York Medical Society. It is based on a prize essay he has obtained. The conclusions of the author, based on 337 cases of which a record is kept, not only of the temperature but of the pulse and respiration, are as follows :

1. The body heat is maintained in health, under all conditions, at the uniform standard of 98.4° Fahr.
2. Any constant deviation from this constitutes disease.
3. A return to and continuance at this standard marks the termination of the disease.
4. A single high temperature is important.
5. The changes of temperature in diseases follow definite and known courses.
6. Variations from these typical ranges of temperature in disease are significant, as indicating a disturbing cause.
7. An irregular course is more unfavorable than a uniformly high range of temperature.
8. Different temperatures characterize different diseases, and various days of the same disease.

9. Although a high temperature indicates a more severe attack, no heat under 109° can be considered surely fatal.

10. The daily study of the pulse and respiration in connection with the temperature is of great assistance.

11. When the temperature and general symptoms agree, but the pulse disagrees, the two former are to be relied on.

12. When the pulse and general symptoms agree in indicating unfavorably, the temperature cannot be relied on, if contradictory, unless the improvement in respect to temperature is marked and persistent.

13. When the pulse and general symptoms agree in a favorable indication, a high or rising temperature should arrest attention.

14. All other means of investigation should be used in connection with the temperature to obtain the greatest benefit from the latter.

15. The continuous daily record of the three vital signs here represented, in the way exhibited, affords much aid in diagnosis, prognosis, and treatment of disease, by the presentation to the eye of its history in these respects.

16. The systematic record of these three points may assist in determining, at some future day, the vexed question whether the type of disease is changing, by preserving pictures which can be easily compared.

Treatment of Pruritus Vulvæ.

Those who have had any experience in the treatment of this troublesome affection will learn with interest that Mr. McGrath states (*Canada Lancet*, November, 1871,) that he has found the following, applied by means of a soft sponge after ablution, morning and evening, attended with the most satisfactory and speedy result:

R. Biborate of Soda,	- - - -	gr. ij.
Hydrochlorate of Morphia,	- - - -	gr. xx.
Hydrocyanic Acid,	- - - -	gr. j.
Glycerine,	- - - -	f oz. j.
Distilled rose-water,	- - - -	f oz. viij.

Nashville Jour. of Med. and Surg.

Chinese Surgery.

John G. Keer, M.D., Chief Surgeon of the Canton Hospital, writes that the department of surgery in this empire can scarcely be said to exist, beyond the application of caustics and plasters to tumors and ulcers, and of poultices to broken bones. They are entirely helpless. There is no native doctor in all China who can give aid in case of accident or disease which requires manual or instrumental interference. The inestimable benefits of operative

surgery, in all its branches, are unknown to them. They are entirely without surgical instruments and all the apparatus which modern ingenuity has applied to the relief of injuries, deformities and disease.—*Detroit Review of Medicine and Surgery.*

Gelseminum in the Treatment of Irritable Bladder.

Dr. W. Scott Hill, Augusta, Maine, (Am. Jour. Med. Sciences, January, 1872), gives five cases of "irritable bladder" successfully treated with gelseminum. In all the cases the same symptoms were present, namely: frequent calls to void the urine, which was small in quantity, often passed *guttatim*, and excessive pain attending micturition. He used Tilden's Fluid Extract of Gelseminum. His usual prescription was:

R. Potassi Bromid.,	- - - -	gr. iv.
Potass. Carbon.,	- - - -	gr. iij.
Fluid Ext. Gelsem.,	- - - -	m. x.
Aque.,	- - - -	oz. ij. M.
S. This quantity every 4 or 6 hours.		

—*Georgia Med. Companion.*

The "American Plan"

Is unquestionably best for America. Electing judges by the people, every one knew would ruin the country, but it didn't. A thousand things contrary to reason, and undoubtedly wrong in the abstract, in America naturally rise up and become the heads of as many corners. The idea of the government of the country was a wrong idea, and was demonstrated to be so by the best talent abroad and at home; but it was American. Amid the clash and clatter, all over America, for the last quarter of a century, upon reform in medical teaching, our feeble voice has, all along the line, proclaimed, "probably medical teaching in America is all wrong, but it has been developed by an American necessity, and is eminently American, and therefore, beyond all doubt, the best for America, and the tendency is infinitely greater for it to become more so than less so. The sessions are too long, the number of teachers and number of lectures too great. We want more demonstration and less gas. The gas element in all of our colleges is six times as long as the demonstration element. The gas is a remnant of foreign barbarism, and is not at all American, and is bound yet to escape through an American pin-hole."

Harvard lost one hundred and five students last session, by what exchanges call "the salutary reform," that is, three sessions. Three sessions, and Greek and Latin, look well, but they are not American. Our exchanges think Harvard will continue this "salutary reform," though it reduces her classes to zero; but we

know better—Harvard is not going to do any such thing, but Harvard will return to her old way. Do we not all know that the University of Pennsylvania got on stilts once, and lengthened her session to six months, her rival poling along her old American keel at four months? Never mind, said the friends of the former, looking upon her empty benches, she will hold out to the last. Not a bit of it, we suggested; she will do a more sensible thing—she will get off her stilts and forswear any such unnatural method of locomotion for life; and she did.

When we consider the number and the value of medical books, (which, notwithstanding, are not to be forced upon students at college, as text-books, when, of all seasons, they have least time to read them, and of all times they can least afford money to buy them); we say, considering the number and value of medical books now, compared with what medical libraries exhibited forty years ago, with opportunity, out of college, afforded by hospitals and clinics, we are amazed that medical teachers still ingeniously contrive successful means to keep students away from them for months, only to hear, from hard benches, these gentlemen gas by the hour.

The great trouble of innovators is, that they will not comprehend that medical abilities are *never* developed by medical colleges. If a man becomes a great physician, he makes himself so after he quits college, and independently of anything he was taught there.

A teacher with his belly full of fire, and every nervous fibril in his organism astrut with electricity, with a memory faithful as a handmaid to his genius, and to the threshold of whose storehouse of learning the writers of all countries and all ages have lain down their contributions; such a man, in an active state of eruption, with lightnings flashing about his mouth, and lava, at a white heat, pouring over his beard, and scintillating among an audience, who, though spell-bound, have each a half-dozen able-bodied *Amens* struggling in his elongated throat, and, like a lighted shell, ready to explode; yes, such a man may inspire one to struggle on amid poverty, neglect, and contumely, till the day-star of promise shall peep over his horizon, and beckon him to triumph and glory; but it is the one man and not the college, to whom he will ascribe his regeneration.

The ways of America are best for America, and while they will naturally adapt themselves to the necessities of each age, they will neither be rough-hewed nor shaped by any one, being, indeed, the logic of events, and therefore inexorable.—*Nashville Journal.*